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MANAGEMENT PLAN DOCUMENTATION STANDARD
AND
DATA ITEM DESCRIPTIONS (DID)

VOLUME OF THE
INFORMATION SYSTEM LIFE-CYCLE AND DOCUMENTATION STANDARDS

Release 4.3

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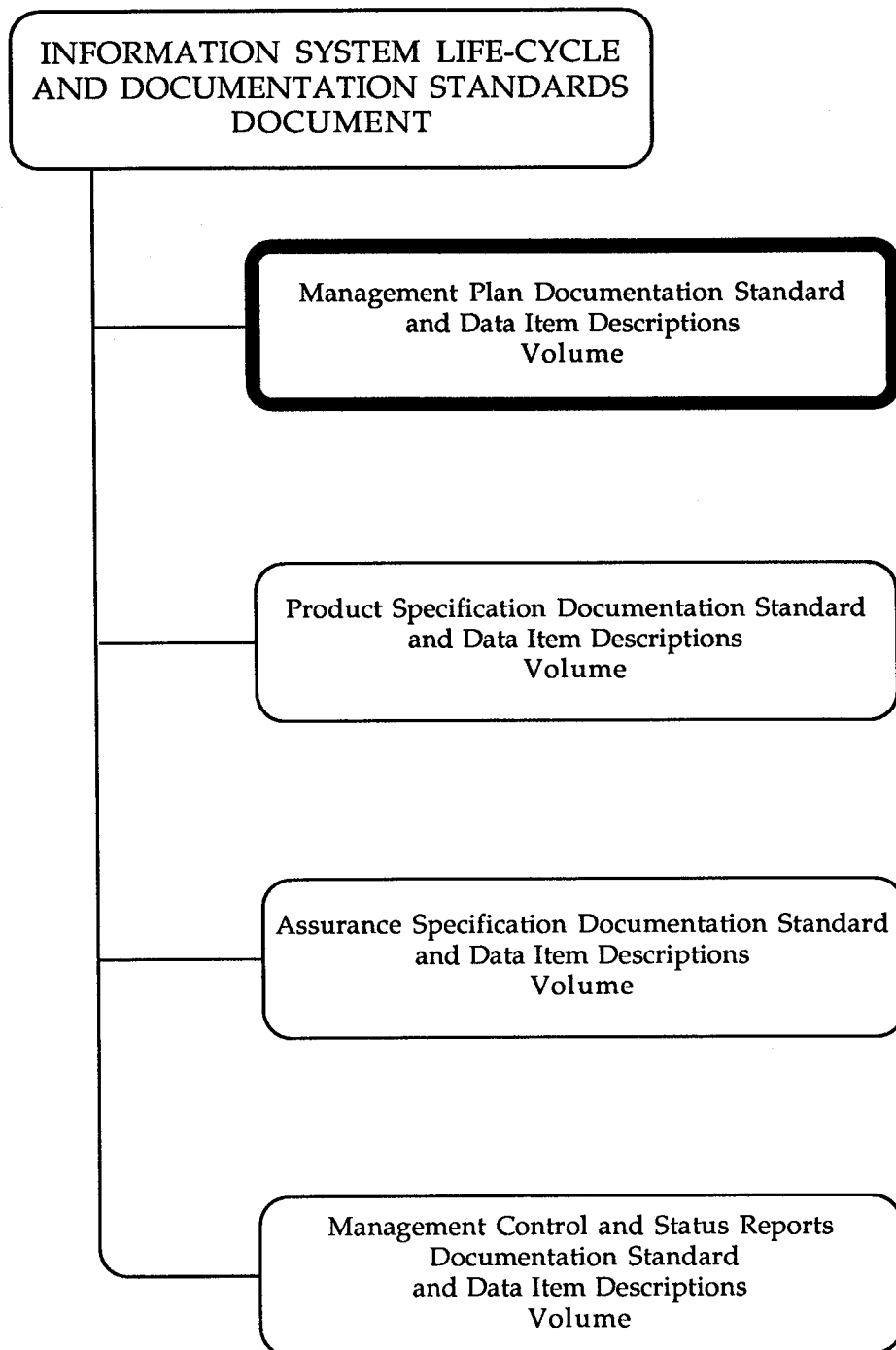
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MANAGEMENT PLAN DOCUMENTATION STANDARD



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ACKNOWLEDGEMENTS

This document incorporates the extensive work of Dr. E. David Callender and Ms. Jody Steinbacher in specifying the documentation standards for information systems and their components. Their contributions are reflected especially in the concept and definition of the information system, the identification of the major categories of documentation, the definition and application of the roll-out concept, the specification of documentation frameworks, the concept of nested life-cycles for components of information systems, and the description of the relationship between information system acquirers and providers.

They have advanced the state-of-the-art for information systems life-cycle management by establishing simplifying principles for identifying needed documentation units to fit a particular system's environment and organization.

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MANAGEMENT PLAN DOCUMENTATION STANDARD

1.0 INTRODUCTION

1.1 Identification of Volume

This is the Management Plan Documentation Standard and Data Item Descriptions Volume rolled-out from the Information System Life-Cycle and Documentation Standards.

1.2 Scope of Volume

A management plan contains all planning information for managing, engineering, assuring, and documenting an information system or a hardware, software, or operational procedures component. This volume states the SMAP documentation standard for a management plan document applicable to all NASA information systems and software, hardware, and operational procedures components and related processes.

The selection, adaptation, and enforcement of these documentation standards is the responsibility of the cognizant program/project manager.

IT IS ASSUMED WITHIN THIS VOLUME THAT THE READER OF THIS STANDARD IS FAMILIAR WITH THE TERMS AND CONTENTS OF THE PARENT VOLUME CONCERNING INFORMATION SYSTEM LIFE-CYCLE AND DOCUMENTATION STANDARDS.

1.3 Purpose and Objectives of Volume

The purpose of this volume is to provide a well organized, easily used standard for management plans used in acquiring, assuring, and developing information systems and software, hardware, and operational procedures components and related processes.

1.4 Volume Status and Schedule

Release 4.2C was the first complete release for Version 4 of the Information System Life-Cycle and Documentation Standards document. All five volumes of the document underwent a SMAP and agency review. Release 4.3 is an update to Release 4.2C based on the approved RIDs from this review. The RID review board determined that change bars will not be used to show the differences between Releases 4.2C and 4.3, as 4.3 is the first baselined release of the Version 4 standards.

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1.5 Volume Organization and Roll-Out

Sections 1 and 2 of this volume identify it, describe its purpose, and cite other related documents. Section 3 provides the rationale and scope for this documentation standard. Section 4 presents the actual standard and related rules for documentation, and illustrates the roll-out concept. Section 5 offers guidelines for applying the standard to the needs of a particular application and organizational environment. Section 6 proposes means for assuring and enforcing the standard.

The Data Item Descriptions (DIDs) for plans are contained in Section 7.

Section 8 contains a list of abbreviations and acronyms, and Section 9 a glossary. Section 10 is available for notes. Section 11 contains two appendices showing sample outlines for a complete management plan written as a single volume for an information system (or stand-alone component) or for a hardware, software, or operational procedures component.

MANAGEMENT PLAN DOCUMENTATION STANDARD

2.0 RELATED DOCUMENTATION

2.1 Parent Documents

The following document is the parent of this volume:

- 1) Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.

2.2 Applicable Documents

The following volumes/documents are referenced herein and are directly applicable to this document:

- 1) Product Specification Documentation Standard and Data Item Descriptions (DID) Volume of the Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.
- 2) Assurance Specification Documentation Standard and Data Item Descriptions (DID) Volume of the Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.
- 3) Management Control and Status Reports Documentation Standard and Data Item Descriptions (DID) Volume of the Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.
- 4) IEEE Standard Glossary of Software Engineering Terminology. ANSI/IEEE Std 729-1983. New York: Institute of Electrical and Electronic Engineers, Inc.

2.3 Information Documents

The following documents, although not directly applicable, are referenced for historical continuity:

- 1) Military Standard for Defense System Software Development, DoD-STD-2167, 4 June 1985, and DoD-STD-2167A, 27 October 1987.
- 2) NASA Software Data Item Descriptions, Version 3, November 1986. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance. (Additional Data Item Descriptions were published as Versions 3.1 - 3.5 in

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1987.)

- 3) Space Station Program Software Management Policies, November 1986.
- 4) Information Processing Resources Management, NHB 2410.1D, April 1985.
- 5) System Safety Engineering Methodologies, NHB 1700.1(V7), March 1988.
- 6) Assuring the Security and Integrity of NASA Automated Information Resources, NMI 2410.7A, Draft Rev: 3/14/88.

MANAGEMENT PLAN DOCUMENTATION STANDARD

3.0 OVERVIEW OF THE MANAGEMENT PLAN DOCUMENTATION STANDARD

3.1 Scope of Standard

The SMAP Management Plan Documentation Standard is applicable to all NASA information systems and their software, hardware, and operational procedures components.

The selection, adaptation, and enforcement of these documentation standards is the responsibility of the cognizant program/project manager.

It is important to note that these documentation standards are not management, technical and engineering, or assurance standards. However, the life-cycle and documentation standards provide the mechanism to document the selected activities and related specifications supporting any management, technical and engineering, or assurance standards.

3.2 Rationale for Standard

The rationale for the documentation structure presented in this standard is to provide visibility and to allow management to assign responsibility for the generation of such documentation.

As specified by the Information System Life-Cycle and Documentation Standards, the documentation set for each information system and component consists of:

- 1) a management plan
- 2) a product specification
- 3) an assurance specification
- 4) a management control and status reports document

An assumption upon which the SMAP documentation standard is based is that it is the responsibility of program/project management to decide what information is to be formally recorded. The documentation standard merely indicates the organization for such information.

3.3 Interface With Other Standards

This documentation standard is derived from the NASA Version 3 software standards maintained by NASA Headquarters Code Q, Office of Safety, Reliability, Maintainability and Quality Assurance.

This documentation standards volume is one of four that augment and detail the life-cycle standards for information systems specified in the parent document. The other three documentation

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standards volumes are referenced in Section 2.2.

MANAGEMENT PLAN DOCUMENTATION STANDARD

4.0 THE MANAGEMENT PLAN DOCUMENTATION STANDARD

The management plan documentation standard describes the format and content of all plans at a single node in an information system's decomposition tree. (For more information on system decomposition, refer to the Information System Life-Cycle and Documentation Standards.)

4.1 Management Plan Structure

The structure for a management plan for an information system or component has a hierarchical organization. The purpose of this hierarchy is to relate individual elements of planning information to each other and to integrate them all into a coordinated whole. The hierarchical organization also provides a mechanism for partitioning the management plan document into multiple volumes when necessary.

The management plan hierarchical structure for an information system is illustrated in Figure 4-1. The hierarchies for information systems and components are similar, differing only to the extent necessary to encompass the unique activities for a system or component.

4.2 Responsibility for Preparation of the Management Plan

Every management plan reflects an agreement between the acquirer of an information system or component and the providers such as the developer or independent verification and validation organization. The acquirer's process requirements are specified in the acquisition plan section. The remaining sections are prepared by the providers to describe how they will accomplish the acquirer's requirements. However, the overall responsibility for the management plan lies with the acquiring manager.

Each management plan is prepared for a particular information system or component; i.e., for a node in the decomposition tree. The acquirer and providers responsible for the management plan for that information system or component usually represent two different organizational levels (or entirely separate organizations) which combine to implement that node in the decomposition tree.

The relationship between the two organizations may be based on a formal contract. In this case, the contract and the management plan must be correlated. It is preferable that the contract refer to the acquisition plan section prepared by the acquiring organization rather than duplicate that information.

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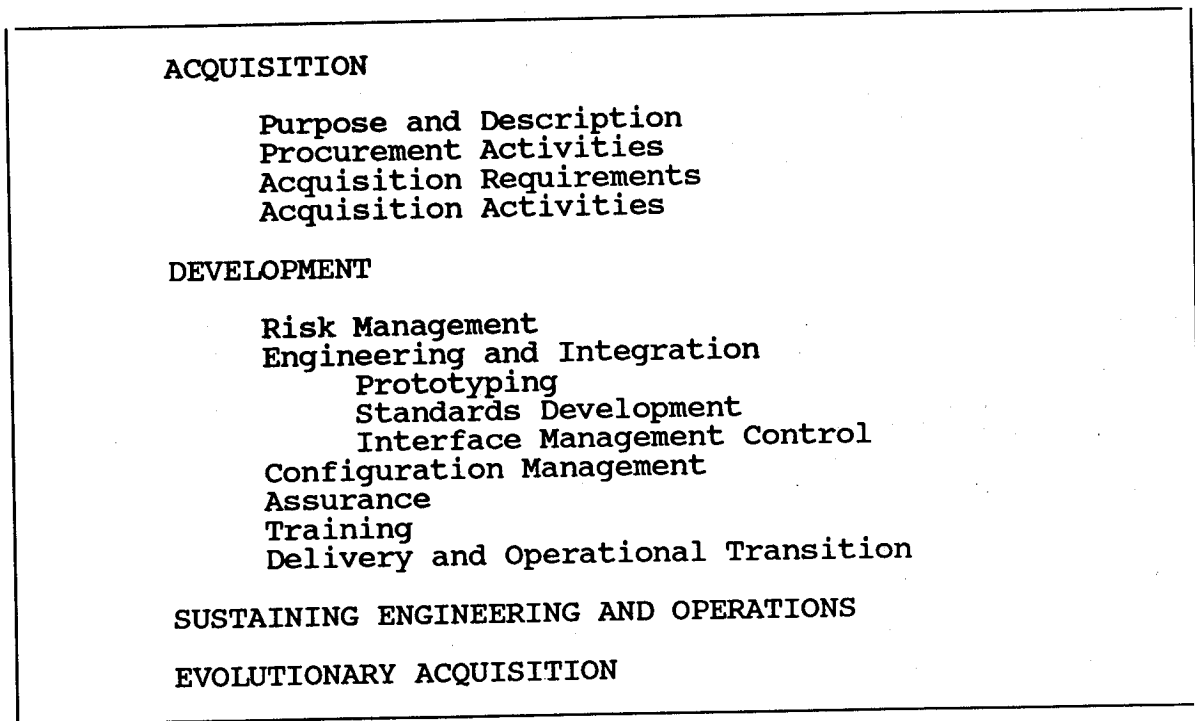


Figure 4-1. Structure for Information System Management Plan.

4.3 Roll-Out Concept and Template

For a small information system or component, it is possible that each document of the documentation set (management plan, product specification, assurance specification, and management control and status reports document) can be written as a single physical volume. However, many information systems and components require that multiple volumes be used for each document. In the case where a documentation set document for an information system or component requires more than one volume, the concept of "roll-out" is employed.

The roll-out concept provides a mechanism whereby sections of the document are packaged as separate volumes. The parent document or volume contains pointers to each of the rolled-out sections. The rolled-out volume contains a pointer back to its parent. This preserves the overall integrity of the documentation set structure while offering the convenience of separately preparing a section of the document. (For convenience of packaging and traceability to Version 3, the DIDs for this document are presented in rolled-out format.) The decision on which sections of the document are rolled-out is stated in the management plan

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by the appropriate manager as identified in Section 4.2.

The Management Plan DIDs for information system (SMAP-DID-M000-SY) and for any component (SMAP-DID-M000-CO) are the top level DIDS for this document in the documentation set. Additional DIDs in Section 7 provide the details for the document content. Each DID consists of: 1) a table of contents and 2) content description.

A separate DID is provided to describe the content of the Management Plan Template (SMAP-DID-M999) itself. The standard template (Figure 4-2) is used as part of the roll-out mechanism.

Because the rolled-out volume represents a single section in the management plan, sections 4.0 through N.0 of the rolled-out volume are actually the major subheadings for the section in the management plan document.

Figure 4-3 illustrates the section numbering rules that are employed when material in a section is rolled-out into a separate volume.

It is important to note that the Resources, Budgets, Schedules, and Organization section pertains only to those activities within the scope of that document or volume. Therefore, if a section is rolled-out into a separate volume, the details of the Work Breakdown Structure, schedules, budgets, organizational structure, etc. pertain only to the activities described in that volume. Of course, a summary of the resources, budgets, schedules, and organization from the rolled-out sections is contained in the parent document.

The purpose of the work breakdown structure (WBS) is to relate resource information (budget, schedule, organization) to activities or products. Hence, it is important that there be consistency between the information given in Section 3.2 and 3.3 and the activity or product information that is given throughout the remainder of the management plan or a rolled-out section. For example, the work breakdown structure for the development provider's test items and associated schedule for the development provider must be consistent with the test planning section described in the developer's product assurance section.

The Abbreviations and Acronyms section defines all acronyms and abbreviations used within the document or volume. The Glossary section includes definitions of special terms used within the document or volume.

The Notes section is used for supplemental information that is not part of the formal, binding information presented elsewhere in the document or volume.

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MANAGEMENT PLAN TEMPLATE

1.0 INTRODUCTION

- 1.1 Identification of Volume
- 1.2 Scope of Volume
- 1.3 Purpose & Objectives of Volume
- 1.4 Volume Status & Schedule
- 1.5 Volume Organization & Roll-Out

2.0 RELATED DOCUMENTATION

- 2.1 Parent Documents
- 2.2 Applicable Documents
- 2.3 Information Documents

3.0 RESOURCES, BUDGETS, SCHEDULES, & ORGANIZATION

- 3.1 Business Practices Definition & Revision Process
 - 3.1.1 Definition of Activities
 - 3.1.2 Method & Approach
 - 3.1.3 Reporting, Monitoring & Revision
- 3.2 Work Breakdown Structure (WBS)
 - 3.2.1 Activity Definition
 - 3.2.2 Cost Account Definition
- 3.3 Resource Estimation & Allocation to WBS
 - 3.3.1 Schedules
 - 3.3.2 Funds/Budgets
 - 3.3.3 Organization
 - 3.3.4 Equipment
 - 3.3.5 Materials, Facilities, & Other Resources
 - 3.3.6 Management Reserves
- 3.4 Work Authorization

4.0 - N.0 SECTIONS OF THE PARENT PLAN BEING ROLLED-OUT INTO A SEPARATE VOLUME

N+1.0 ABBREVIATIONS AND ACRONYMS

N+2.0 GLOSSARY

N+3.0 NOTES

N+4.0 APPENDICES

Figure 4-2. Management Plan Template.

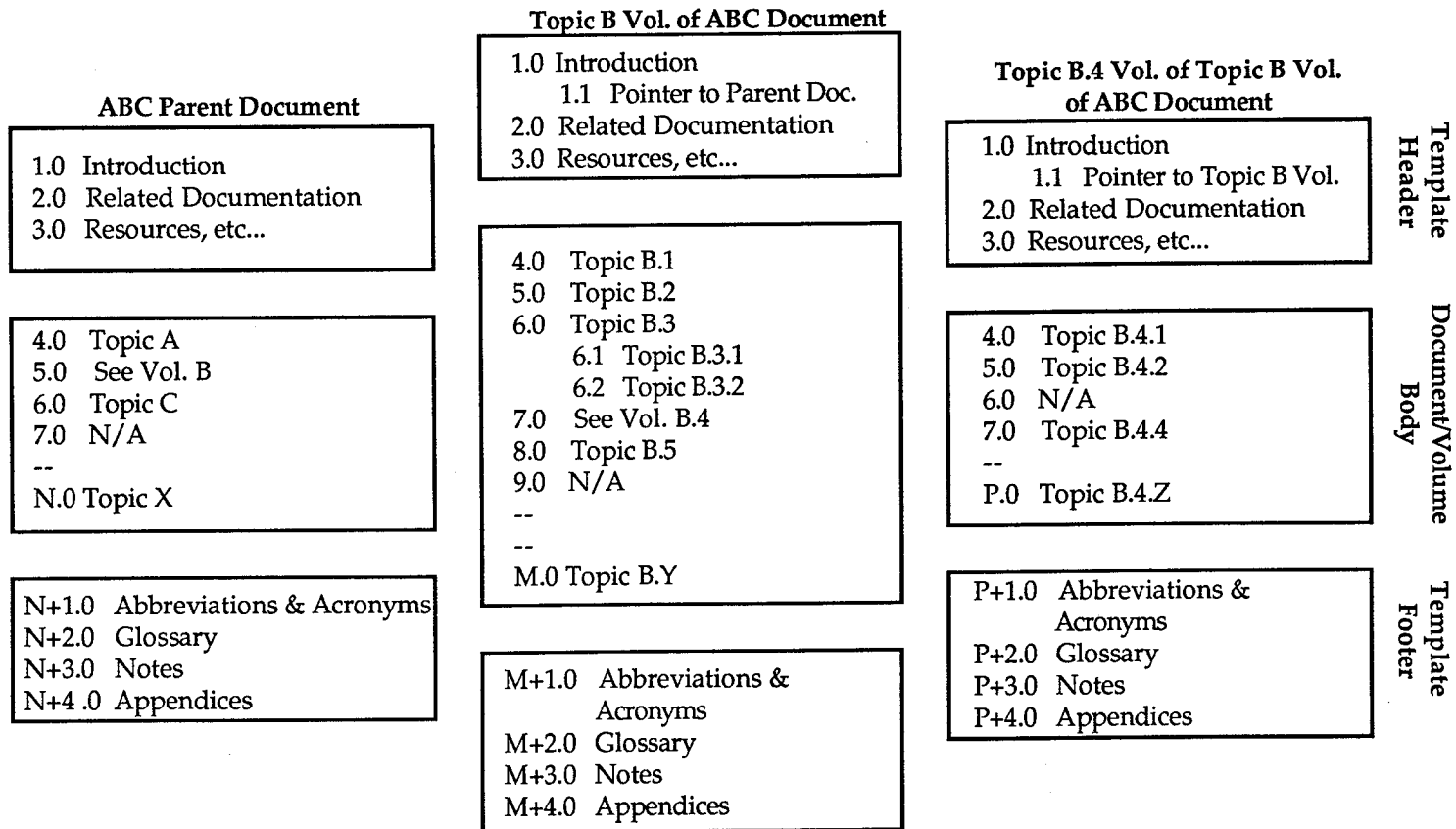


Figure 4-3. Documentation Tailoring - Roll-Out Example.

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Appendices are considered to be an integral part of the document or volume. They may be separately page numbered, or included in the pagination for the volume as a whole. They may bear a section number within the overall volume, or may be separately identified.

4.4 The Management Plan Standard and Rules

All of the standards contained in the parent document (Information System Life-Cycle and Documentation Standards) shall apply to management plans. This section contains additional rules that are specific to documentation.

For the information system itself, and for each subordinate information system (subsystem) and software, hardware, and operational procedures component identified in the decomposition tree, the following standards shall apply:

- 1) There shall be a single management plan document consisting of one or more volumes. Management plans shall exactly follow the outline specified by the DIDs in Section 7.0.
- 2) The applicability and designation of management plan sections to be rolled-out as separate volumes shall be specified by the acquiring manager responsible for the information system or component for which the management plan is being prepared.
- 3) The following rules shall be applied when generating a management plan:
 - a) The roll-out of a management plan section into a separate volume shall follow the standard format specified by the Management Plan Template DID (SMAP-DID-M999) given in Section 7.0.
 - b) The acquiring organization has overall responsibility for the generation of the management plan. The acquirer usually prepares the acquisition plan section, but may request that providers produce that section under the acquirer's direction. Providers shall respond to the acquirer's requirements as stated in the acquisition plan when preparing the other sections of the management plan for which they are responsible.
 - c) Each rolled-out volume shall be titled as illustrated below. This method supports the standard and enables one to place the volume in context with its parent(s).

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```
< title of the rolled-out section >  
    Volume of the  
    [ < parent volume title >  
      Volume of the ]  
< documentation set parent title >  
    Document
```

Note that the volume entry in brackets ([]) above is to be expanded zero or more times depending on the number of levels of roll-out from the documentation set parent. Additional information may be included on the title page as specified by delivery requirements.

- d) When writing the management plan document, the outline specified by the management plan (top level) DID shall be used. If more detailed structuring is needed for a section than that shown in this DID, then the structuring shall follow the detailed, rolled-out, DID(s) for that section. Additional substructure detail (i.e., below the lowest level DID outline) may be added at the discretion of the author.

Sections or subsections may be added if needed to convey planning information additional to that specified in the DIDs. Added sections or subsections shall be inserted following those specified in the DIDs.

- e) A section shall either:

- o contain information;
- o point to a lower level volume rolled-out from this document or volume;
- o point to another document (e.g., the contract governing the effort) that contains the information appropriate to the section;
- o be marked TBD (to be determined) if appropriate information is not yet available; or
- o be marked "Not applicable" or "None."

If a section is "Not applicable" or "None," then none of its subordinate sections shall appear.

- f) The documentation standard designates a unique place for each element of information. The same information shall not be incorporated in more than one place when generating a document or rolled-out volume.
- g) The manager responsible for a plan may roll-out beyond

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the roll-out structure implied by the DIDs in Section 7 of this volume. In that case the Management Plan Template (SMAP-DID-M999) shall be used.

- h) Any document that is to be placed under any level of an organization's configuration management shall be compatible with the appropriate electronic formats specified in applicable support environment(s) (such as the SSE and TMIS documentation formats for the Space Station Freedom Program.)

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5.0 APPLICATION AND SUPPORT OF MANAGEMENT PLAN DOCUMENTATION STANDARD

This section provides guidelines for tailoring and using this standard to prepare a Management Plan or portion thereof.

5.1 Guidelines

The following collection of guidelines is offered to assist in applying this standard.

5.1.1 How to Use the DIDs to Prepare a Management Plan

To prepare a management plan for an information system, start with the Information System Management Plan DID (SMAP-DID-M000-SY). For a software, hardware, or operational procedures component, start with the Component Management Plan DID (SMAP-DID-M000-CO).

It is the responsibility of the acquiring manager of that information system or component to decide:

- 1) Which sections are relevant and which should be marked "Not applicable" or "None."
- 2) What level of detail is required for each section.
- 3) Which sections will be rolled-out as separate volumes.
- 4) Who will be responsible for the activities covered by a section, and therefore will be also responsible for preparing that section or volume.

Thus the management plan itself records and provides overall direction as to the format of the management plan.

The DIDs in Section 7 of this volume are presented in a rolled-out format. If the management plan is to be contained in one volume, then prepare Sections 1, 2, 3, and the Abbreviations and Acronyms, Glossary, Notes, and Appendices sections as specified in the Management Plan Template DID (SMAP-DID-M999). Then, for each section in the Management Plan DID (SMAP-DID-M000) to be included inline, determine:

- a) If the amount of information to be included can be conveyed in a few paragraphs, without subsections, then do so. However, look over the detailed DID cited in that section of the top level DID to be sure that all appropriate information is included.

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- b) If the amount or detail of the information to be included warrants use of subsections, then use the structure of the cited detailed DID as the substructure for that section. For example, section 3.0 in the detailed DID shall appear as Section N.1 in the document; Section 4.0 in the detailed DID shall appear as Section N.2 in the document, and so on (where N stands for the corresponding section in the top level DID). Similarly, Section 3.1 in the detailed DID shall appear as Section N.1.1 in the document. See Figure 5-1 for an example of incorporating substructure from detailed DIDs into the inline structure for a section.

Each document subsection specified in the detailed DID shall be included and shall be prepared in accordance with the rules stated in Section 4 of this documentation standard. If the detailed DID itself cites another detailed DID, it is necessary to follow the structure indicated by the latter DID only if further subsections are required.

- c) Additional sections and subsections may be included as described by the rules in Section 4.

If the management plan is to be contained in multiple volumes, then for the sections that are rolled-out into separate volumes, use the appropriate DID in Section 7 or the rules for rolling-out a section.

Because the management plan represents an agreement between the acquirer and provider organizations (e.g., developer), the acquisition plan section specifies the acquiring organization's requirements to which the other plans respond. If no formal contract governing acquisition and development is required, then both organizations should prepare the management plan jointly, with the acquirer having responsibility for writing the acquisition plan.

If a formal contract is required and the developer has major responsibility for the management plan, then the acquisition plan section may be rolled-out into a separate volume prepared by the acquirer prior to procurement. The acquisition plan may then be updated and used as a part of the contract; if it is not, it should refer to appropriate sections in the contract rather than duplicate the contract information. However, Section 3 of the acquisition plan should include the top level milestones and schedule even if these are described elsewhere.

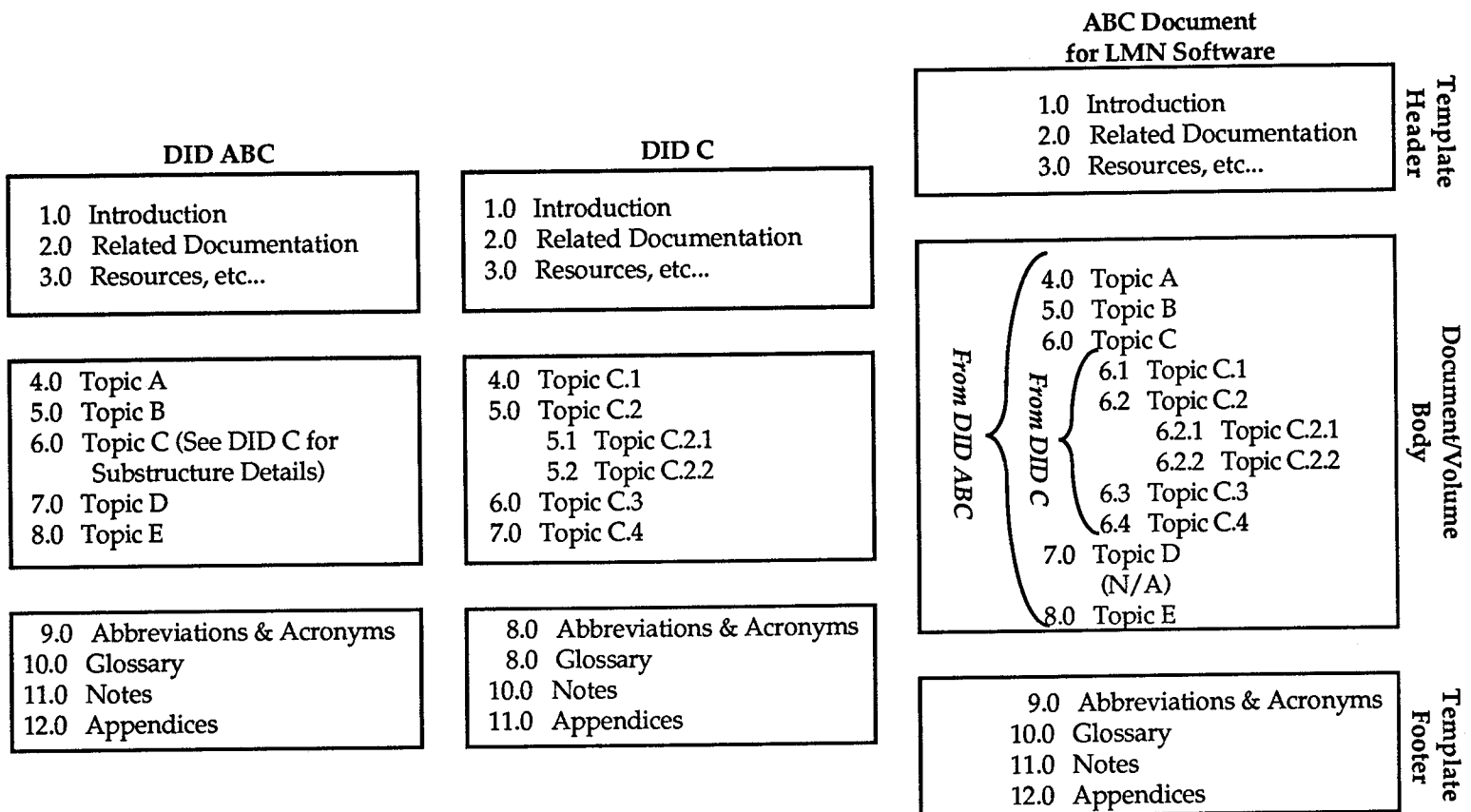


Figure 5-1. Incorporating DID Substructure In-Line.

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5.1.2 Roll-Out Factors

Factors influencing a roll-out decision include:

- a) When the activities to be accomplished are delegated to another organization, whether internal or external.
- b) When the detail occasioned by the complexity of the activities to be accomplished is too great to be described within a single physical volume.
- c) When it is desirable to apply configuration management and control to the section separately from other sections because of amount of change expected, time required to review before baselining, etc.

5.1.3 Documentation Content

Documentation should be as brief and specific as possible while conveying all essential information. To aid in meeting this goal:

- a) If a section has subsections, content information should, in general, be contained within the subsections rather than under the section heading. Reserve the use of text under section headings, in cases where detailed information is provided in subsections, for such essentials as:
 - o General explanatory information needed to aid the reader in understanding the detailed information following
 - o Information common to two or more of the subsections following

Do not write "boilerplate" that does not contain any data of substance; e.g., a list of the topics covered in the subsections, or a promise to "do good things".

- b) Avoid redundancy. The hierarchical structure specified by the documentation standard and the DIDs provides a unique place to put each item of information needed, for most cases.
- c) Except where required by this standard, do not summarize the content of a rolled-out section in the parent document or volume. The summary might have to be changed each time the rolled-out section is changed.

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5.1.4 Transition from Current Data Requirements Lists

During the period of transition while this standard is introduced into an ongoing NASA activity, the following considerations apply.

- a) Documents specified by an existing Data Requirements List (DRL) may closely parallel rolled-out sections as described in this documentation standard. When revising the DRL, or if no specific outline is provided, it may be convenient to follow the appropriate DIDs presented in section 7.
- b) As an aid to establishing an easily-managed documentation set for an application, if it does not currently exist, it may be desirable to prepare the top level documentation set document specified by this standard. This document can serve as an index to existing documentation by pointing to the appropriate DRL for each section. This provides then a relationship structure (or documentation tree) for pieces of existing data. More importantly, preparation of the document may highlight gaps in coverage for information needed to manage and produce the information system or component.
- c) Information that should appear in Section 3, Resources, Budgets, Scheduling, and Organization, and in Section 4, Acquisition Plan, may currently reside in contracts. The management plan document may cite the appropriate contract rather than duplicate the information. If the contract does not contain all the information requested in section 3, then that additional information should be provided.

5.1.5 Use of a Standards and Procedures Repository to Augment Plans

Acquirer and provider managers are responsible for determining the need and establishing a repository for any additional procedures, guidelines, rules, and practices for documentation that are not already defined in an existing repository, (such as the ones maintained for the Space Station Freedom Program by TMIS and the SSE), or a parent information system or component repository. At the manager's discretion, procedural information for minor or unique matters may be included as added subsections in a documentation set document (per rule for additional sections).

In general, detailed procedures, rules, and guidelines governing day-to-day activities, or which are likely to change frequently, should be included in the repository. The management plan should specify "what" is to be done (i.e., the process), rather than detailed "how-to" instructions (e.g., procedures, report formats, or instructions for completing and distributing forms). For

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example, for the Space Station Freedom Program, TMIS and SSE provide a repository of rules (standards) and procedures (including tools) for use in preparing, reviewing, revising, publishing, and distributing documentation.

Please note that interfaces (such as those between two information systems) are not necessarily standards, but are part of the product specifications' interface requirements and design.

5.1.6 Relationship Between the Management Plan and the Management Control and Status Report Document

Within the management plan, for a specific information system or component, all management, technical, and assurance reports to be generated throughout the life-cycle, including frequency and flow of reports, are to be specified. The reports specified will conform to the minimum content requirements specified in the Management Control and Status Reports Documentation Standards and DID Volume. The actual format of the reports is often dependent on project or organization standard formats which should be referenced in the management plan. If not available elsewhere, the format should be included in an appendix of the management plan.

The Management Control and Status Reports document for the specific information system or component is the vehicle for organizing, tracking, and accessing all the reports specified in the management plan throughout the life-cycle.

5.1.7 Relationship Between the Management Plan and the Product and Assurance Specifications

The management plan defines the development (engineering) and assurance processes for the information system or component. As part of this, the content and roll-out structures of the product and assurance specifications for the information system or component are defined.

In addition, if the management plan identifies the development of other products, such as new standards or capabilities for prototyping, to support the development of the information system or component, then a minimum of a product specification and assurance specification pair should be generated for these support products. It is assumed that in most cases that these specifications will be short, one-volume documents. The plan for the development of the support product is included in the management plan for the information system or component (or may be rolled-out into a separate volume), and uses the development plan DID for content and structure.

MANAGEMENT PLAN DOCUMENTATION STANDARD

In general, facility information is recorded in Section 3 of the Planning Volumes. If a facility is to be developed or substantially modified then this facility should be treated as a separate information system. (It contains hardware such as computers and communication lines, software such as operating systems and compilers, and the operational procedures that the operators follow.) A management plan should be prepared for this facility and associated product specification, assurance specification, and management control and status reports documents be subsequently prepared.

5.2 Tools Supporting the Application and Use of the Documentation Standard for a Management Plan

Support environments may provide tools for the application and use of the documentation standard. For example, TMIS and the SSE provide tools for the Space Station Freedom Program that support the documentation standards. Such tools are used when preparing, reviewing, revising, publishing, distributing, and configuration managing documents. Tools are also provided for preparing a WBS and schedules. Tool support of the standards is the responsibility of the program/project.

MANAGEMENT PLAN DOCUMENTATION STANDARD

6.0 ASSURANCE AND ENFORCEMENT OF THE DOCUMENTATION STANDARD FOR A MANAGEMENT PLAN

If the SMAP information system life-cycle and documentation standards have been selected as standards by program/project management, then it is the responsibility of the acquiring manager of the information system or component to assure and enforce this documentation standard for all documentation written for that information system or component.

The assurance process is formally addressed in one of two ways:

- 1) As a quality assurance activity during the phase transition reviews indicated by the information system life-cycle.
- 2) As explicitly called for within any planning document.
(For example, an assurance plan section of the management plan could call for special reviews of individual documents and volumes.)

The information system life-cycle specifies that the initial version of the management plan is to be generated by the end of the information system concept and initiation phase. This version of the management plan, with emphasis on the acquisition section, is reviewed at the end of that phase.

The information system life-cycle also specifies when other portions of the management plan are to be prepared and reviewed during later phases of the life-cycle. This life-cycle standard also specifies that the management plan shall be reviewed as it is updated.

It is the responsibility of the reviewers of any management plan to be familiar with the management plan documentation standard and to question any deviations from this standard.

Because all sections specified in a DID must be included in the document or volume, managers and participants in management reviews can easily verify that all necessary information has been prepared. The structure for the document serves as a gross level checklist.

MANAGEMENT PLAN DOCUMENTATION STANDARD

7.0 DATA ITEM DESCRIPTIONS (DIDS)

This section contains the specifications for the format, outline, and content of the management plan document and of rolled-out sections.

Because presenting the outline for the management plan as a single DID is overwhelming and unmanageable, major sections have been rolled-out into separate DIDs using the standard roll-out template. This provides traceability to Version 3 DIDs and ease of use and packaging. However, if it is desirable to create the management plan as a single document, sample detailed table of contents for such a document is presented in the appendices section of this volume.

The number of volumes generated for a specific information system or component management plan need not mirror the number of DIDs presented in this section. Lower level detailed DIDs provide additional substructure and contain content discussion which should be reviewed even when the content is recorded in-line (i.e., not rolled-out). In general, one would start with the appropriate SMAP-DID-M000 using the guidelines in Section 5. Documentation authors then decide to what level the management plan is to be rolled-out. (If no DID is cited, then additional substructure is at the discretion of the author.)

Tables 7-1 through 7-4 are provided to assist the users of these standards. Table 7-1 contains a listing of the DIDs by DID number (from the Table of Contents). Table 7-2 contains a listing of the DIDs by DID title. Table 7-3 depicts the relationships among the planning DIDs for an information system. Table 7-4 shows the relationships among the planning DIDs for a software, hardware, or operational procedures component. Each level of indentation in Tables 7-3 and 7-4 reflects an additional level of DID detail and substructure. Tables 7-3 and 7-4 are not to be taken as a roll-out structure for any particular management plan.

The Template (SMAP-DID-M999) provides detailed instructions for preparing the sections that are common to the document and all volumes rolled-out from the document. Note that this DID does not itself represent a particular separate document or volume, but is used to generate a volume format for a section that a manager wishes to document in a separate volume.

The two Management Plan DIDs (for an information system (SMAP-DID-M000-SY) or for a hardware, software, or operational procedures component (SMAP-DID-M000-CO)) provide an outline for the complete management plan document for an information system or a software, hardware, or operational procedures component. Major sections of the DIDs point to DIDs that contain detailed descriptions for the content of those sections.

MANAGEMENT PLAN DOCUMENTATION STANDARD

Some DIDs are specific to either information systems or components. This is reflected in their title. All other DIDs are common to both information systems and components.

The detailed DIDs in section 7 may be used as they stand to produce separate volumes of a management plan. If the section represented by a detailed DID is to be presented, instead, as an inline part of a management plan document, then only those sections from 4.0 to (but not including) the Abbreviations and Acronyms section are to be used. (See Section 5.1 for further explanation.)

MANAGEMENT PLAN DOCUMENTATION STANDARD

TABLE 7-1. DID Index (Numeric Order).

SMAP-DID-M000-SY	Information System Management Plan DID	29
SMAP-DID-M000-CO	Software, Hardware, or Operational Procedures (Component) Management Plan DID	33
SMAP-DID-M100-SY	Information System Acquisition Plan DID	37
SMAP-DID-M100-CO	Component Acquisition Plan DID ..	48
SMAP-DID-M200-SY	Information System Development Plan DID	59
SMAP-DID-M200-CO	Component Development Plan DID ..	64
SMAP-DID-M240	Engineering and Integration Plan DID	69
SMAP-DID-M241	Prototyping Plan DID	75
SMAP-DID-M242	Interface Control Plan DID	79
SMAP-DID-M243	Training Development Plan DID ...	82
SMAP-DID-M250	Delivery and Operational Transition Plan DID	86
SMAP-DID-M300	Sustaining Engineering and Operations Plan DID	91
SMAP-DID-M350	Delivery Plan DID	96
SMAP-DID-M400-SY	Information System Evolutionary Acquisition Plan DID	101
SMAP-DID-M910	Risk Management Plan DID	105
SMAP-DID-M920	Configuration Management Plan DID	109
SMAP-DID-M930	Assurance Plan DID	114
SMAP-DID-M931	Quality Assurance Plan DID	119
SMAP-DID-M932	Test Plan DID	123
SMAP-DID-M933	Quality Engineering Assurance Plan DID	127
SMAP-DID-M934	Safety Assurance Plan DID	131
SMAP-DID-M935	Security and Privacy Assurance Plan DID	135
SMAP-DID-M936	Verification and Validation Plan DID	139
SMAP-DID-M937	Certification Plan DID	143
SMAP-DID-M999	Management Plan Template DID	146

MANAGEMENT PLAN DOCUMENTATION STANDARD

TABLE 7-2. DID Index (Alphabetic Order).

Assurance Plan DID	SMAP-DID-M930	114
Certification Plan DID	SMAP-DID-M937	143
Component Acquisition Plan DID	SMAP-DID-M100-CO	48
Component Development Plan DID	SMAP-DID-M200-CO	64
Configuration Management Plan DID	SMAP-DID-M920	109
Delivery and Operational Transition Plan DID	SMAP-DID-M250	86
Delivery Plan DID	SMAP-DID-M350	96
Engineering and Integration Plan DID	SMAP-DID-M240	69
Information System Acquisition Plan DID	SMAP-DID-M100-SY	37
Information System Development Plan DID	SMAP-DID-M200-SY	59
Information System Evolutionary Acquisition Plan DID	SMAP-DID-M400-SY	101
Information System Management Plan DID	SMAP-DID-M000-SY	29
Interface Control Plan DID	SMAP-DID-M242	79
Management Plan Template DID	SMAP-DID-M999	146
Prototyping Plan DID	SMAP-DID-M241	75
Quality Assurance Plan DID	SMAP-DID-M931	119
Quality Engineering Assurance Plan DID	SMAP-DID-M933	127
Risk Management Plan DID	SMAP-DID-M910	105
Safety Assurance Plan DID	SMAP-DID-M934	131
Security and Privacy Assurance Plan DID	SMAP-DID-M935	135
Software, Hardware, or Operational Procedures (Component) Management Plan DID	SMAP-DID-M000-CO	33
Sustaining Engineering and Operations Plan DID	SMAP-DID-M300	91
Test Plan DID	SMAP-DID-M932	123
Training Development Plan DID	SMAP-DID-M243	82
Verification and Validation Plan DID	SMAP-DID-M936	139

MANAGEMENT PLAN DOCUMENTATION STANDARD

TABLE 7-3. Complete DID Set for an Information System Management Plan.

SMAP-DID-M000-SY	Information System Management Plan
SMAP-DID-M100-SY	Information System Acquisition Plan
SMAP-DID-M910	Risk Management Plan
SMAP-DID-M920	Configuration Management Plan
SMAP-DID-M930	Assurance Plan
SMAP-DID-M931	Quality Assurance Plan
SMAP-DID-M932	Test Plan
SMAP-DID-M933	Quality Engineering Assurance Plan
SMAP-DID-M934	Safety Assurance Plan
SMAP-DID-M935	Security and Privacy Assurance Plan
SMAP-DID-M936	Verification and Validation Plan
SMAP-DID-M937	Certification Plan
SMAP-DID-M200-SY	Information System Development Plan
SMAP-DID-M910	Risk Management Plan
SMAP-DID-M920	Configuration Management Plan
SMAP-DID-M930	Assurance Plan
SMAP-DID-M931	Quality Assurance Plan
SMAP-DID-M932	Test Plan
SMAP-DID-M933	Quality Engineering Assurance Plan
SMAP-DID-M934	Safety Assurance Plan
SMAP-DID-M935	Security and Privacy Assurance Plan
SMAP-DID-M936	Verification and Validation Plan
SMAP-DID-M937	Certification Plan
SMAP-DID-M240	Engineering and Integration Plan
SMAP-DID-M241	Prototyping Plan
SMAP-DID-M242	Interface Control Plan
SMAP-DID-M243	Training Development Plan
SMAP-DID-M250	Delivery and Operational Transition Plan
SMAP-DID-M300	Sustaining Engineering and Operations Plan
SMAP-DID-M920	Configuration Management Plan
SMAP-DID-M930	Assurance Plan
SMAP-DID-M931	Quality Assurance Plan
SMAP-DID-M932	Test Plan
SMAP-DID-M933	Quality Engineering Assurance Plan
SMAP-DID-M934	Safety Assurance Plan
SMAP-DID-M935	Security and Privacy Assurance Plan
SMAP-DID-M936	Verification and Validation Plan
SMAP-DID-M937	Certification Plan
SMAP-DID-M350	Delivery Plan
SMAP-DID-M400-SY	Information System Evolutionary Acquisition Plan

MANAGEMENT PLAN DOCUMENTATION STANDARD

TABLE 7-4. Complete DID Set for a Component Management Plan.

SMAP-DID-M000-CO	Software, Hardware, or Operational Procedures (Component) Management Plan
SMAP-DID-M100-CO	Component Acquisition Plan
SMAP-DID-M910	Risk Management Plan
SMAP-DID-M920	Configuration Management Plan
SMAP-DID-M930	Assurance Plan
SMAP-DID-M931	Quality Assurance Plan
SMAP-DID-M932	Test Plan
SMAP-DID-M933	Quality Engineering Assurance Plan
SMAP-DID-M934	Safety Assurance Plan
SMAP-DID-M935	Security and Privacy Assurance Plan
SMAP-DID-M936	Verification and Validation Plan
SMAP-DID-M937	Certification Plan
SMAP-DID-M200-CO	Component Development Plan
SMAP-DID-M910	Risk Management Plan
SMAP-DID-M920	Configuration Management Plan
SMAP-DID-M930	Assurance Plan
SMAP-DID-M931	Quality Assurance Plan
SMAP-DID-M932	Test Plan
SMAP-DID-M933	Quality Engineering Assurance Plan
SMAP-DID-M934	Safety Assurance Plan
SMAP-DID-M935	Security and Privacy Assurance Plan
SMAP-DID-M936	Verification and Validation Plan
SMAP-DID-M937	Certification Plan
SMAP-DID-M240	Engineering and Integration Plan
SMAP-DID-M241	Prototyping Plan
SMAP-DID-M242	Interface Control Plan
SMAP-DID-M243	Training Development Plan
SMAP-DID-M250	Delivery and Operational Transition Plan
or	
SMAP-DID-M350	Delivery Plan
SMAP-DID-M300	Sustaining Engineering and Operations Plan
SMAP-DID-M920	Configuration Management Plan
SMAP-DID-M930	Assurance Plan
SMAP-DID-M931	Quality Assurance Plan
SMAP-DID-M932	Test Plan
SMAP-DID-M933	Quality Engineering Assurance Plan
SMAP-DID-M934	Safety Assurance Plan
SMAP-DID-M935	Security and Privacy Assurance Plan
SMAP-DID-M936	Verification and Validation Plan
SMAP-DID-M937	Certification Plan
SMAP-DID-M350	Delivery Plan

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM MANAGEMENT PLAN DID: SMAP-DID-M000-SY

SMAP-DID-M000-SY

INFORMATION SYSTEM MANAGEMENT PLAN

DATA ITEM DESCRIPTION

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- 7.0 EVOLUTIONARY ACQUISITION PLANNING
- 8.0 ABBREVIATIONS AND ACRONYMS
- 9.0 GLOSSARY
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MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM MANAGEMENT PLAN DID: SMAP-DID-M000-SY

EXPLANATORY NOTE

The purpose of the information system management plan is to provide the organization for all planning information for an information system. Planning for management, assurance, and development for all life-cycle phases for the information system, including sustaining engineering, are included. Because the management plan represents an agreement between the acquirer and the provider organizations, plans from both are contained in the management plan.

See Section 5.1.1 "How to Use the DIDs to Prepare a Management Plan."

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

Note: If any section of this plan is rolled-out into a separate volume, the details relating to that activity are contained within that rolled-out volume. Summary information on that activity is included here.

4.0 ACQUISITION PLANNING

The purpose of this section is to specify tasks to be performed by the acquirer to manage the acquisition and the acquirer's assurance of the information system being acquired.

This section also identifies acquisition requirements and constraints, and specifies the standards to be applied for development and assurance.

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM MANAGEMENT PLAN DID: SMAP-DID-M000-SY

The acquisition plan shall include the following subsections:

- o Purpose and Description of information system/component
- o Statement of Applicable Standards
- o Procurement Activities Planning
- o Acquisition Requirements
- o Acquisition Activities Planning including assurance activities to be conducted by acquirer or designee

Refer to the Information System Acquisition Plan DID (SMAP-DID-M100-SY) for a further description of the structure and content for each topic.

5.0 DEVELOPMENT PLANNING

The purpose of this section is to describe the development process including developer's engineering, assurance, and configuration management planning. This plan must meet the requirements stated in the acquisition plan by the acquirer.

The entire development planning section may be rolled-out into one or more volumes, or it may be included within the management plan document with or without some of its subsections rolled-out into separate volumes.

The development planning section includes the following subsections:

- o Risk Management Planning
- o Engineering and Integration Planning
- o Configuration Management Planning
- o Assurance Planning
- o Training for Development Personnel Planning
- o Delivery and Operational Transition Planning

Refer to the Information System Development Plan DID (SMAP-DID-M200-SY) for further description of the contents of the development planning subsections.

6.0 SUSTAINING ENGINEERING AND OPERATIONS PLANNING

The purpose of this section is to describe the plan for sustaining engineering and operations in terms of activities, methods and approach, controls, and support environment requirements.

The primary topics for the plan are:

- o Sustaining Engineering and Operations Processes

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM MANAGEMENT PLAN DID: SMAP-DID-M000-SY

- o Configuration Management and Product Assurance
- o Product Support and Delivery
- o Support Environment Requirements and Tools

Refer to the Sustaining Engineering and Operations Plan DID (SMAP-DID-M300) for a further description of the structure and content for each topic.

7.0 EVOLUTIONARY ACQUISITION PLANNING

If the information system is to be developed over a period of time using the evolutionary process (i.e., a major iteration through the entire life-cycle), specify in this section the plan for such development.

Planning for evolutionary acquisition shall address, as a minimum, the following topics:

- o Life-cycle iterations
- o Reusable and inheritable components
- o Design integrity and legacy
- o Integration and test interfaces

Refer to the Information System Evolutionary Acquisition Plan DID (SMAP-DID-M400-SY) for a further description of the structure and content for each topic.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
COMPONENT MANAGEMENT PLAN DID: SMAP-DID-M000-CO

SMAP-DID-M000-CO

SOFTWARE, HARDWARE, OR OPERATIONAL PROCEDURES COMPONENT

MANAGEMENT PLAN

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MANAGEMENT PLAN DOCUMENTATION STANDARD
COMPONENT MANAGEMENT PLAN DID: SMAP-DID-M000-CO

EXPLANATORY NOTE

The purpose of the component management plan is to provide the organization for all planning information for a component. Planning for management, assurance, and development for all life-cycle phases for the component, including sustaining engineering, is included. Because the management plan represents an agreement between the acquirer and the provider organizations, plans from both are contained in the management plan.

See Section 5.1.1 "How to Use the DIDs to Prepare a Management Plan."

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

Note: If any section of this plan is rolled-out into a separate volume, the details relating to that activity are contained within that rolled-out volume. Summary information on that activity is included here.

4.0 ACQUISITION PLANNING

The purpose of this section is to specify tasks to be performed by the acquirer to manage the acquisition and assurance of the component being acquired.

This section also identifies acquisition requirements and constraints, and specifies the standards to be applied for development and assurance.

MANAGEMENT PLAN DOCUMENTATION STANDARD
COMPONENT MANAGEMENT PLAN DID: SMAP-DID-M000-CO

The acquisition plan shall include the following subsections:

- o Purpose and Description of information system/component
- o Statement of Applicable Standards
- o Procurement Activities Planning
- o Acquisition Requirements
- o Acquisition Activities Planning including assurance activities to be conducted by acquirer or designee

Refer to the Component Acquisition Plan DID (SMAP-DID-M100-CO) for a further description of the structure and content under each topic.

5.0 DEVELOPMENT PLANNING

The purpose of this section is to describe the development process including developer's engineering, assurance, and configuration management planning. This plan must meet the requirements stated in the acquisition plan by the acquirer.

The entire development planning section may be rolled-out into one or more volumes, or it may be included within the management plan document with or without some of its subsections rolled-out into separate volumes.

The development planning section includes the following subsections:

- o Risk Management Planning
- o Engineering and Integration Planning
- o Configuration Management Planning
- o Assurance Planning
- o Training for Development Personnel Planning
- o Delivery Planning

Refer to the Component Development Plan DID (SMAP-DID-M200-CO) for further description of the contents of the development planning subsections.

6.0 SUSTAINING ENGINEERING AND OPERATIONS SUPPORT PLANNING

The purpose of this section is to describe the plan for sustaining engineering and supporting operation of the component as installed in the information system in terms of activities, methods and approach, controls, and support environment requirements. In general, this is in support of any sustaining engineering and operations performed for the information system. It is important to address activities after delivery of the component and prior to initiation of sustaining engineering and operations for the information system.

MANAGEMENT PLAN DOCUMENTATION STANDARD
COMPONENT MANAGEMENT PLAN DID: SMAP-DID-M000-CO

The primary topics for the plan are:

- o Sustaining Engineering and Operations Processes
- o Configuration Management and Product Assurance
- o Product Support and Delivery
- o Support Environment Requirements and Tools

Refer to the Sustaining Engineering and Operations Plan DID (SMAP-DID-M300) for a further description of the structure and content for each topic.

7.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

8.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM ACQUISITION PLAN DID: SMAP-DID-M100-SY

SMAP-DID-M100-SY
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- 5.0 PROCUREMENT ACTIVITIES PLANNING
 - 5.1 Procurement Package Preparation
 - 5.2 Proposal Evaluation
 - 5.3 Contract Negotiation
 - 5.4 Procurement Risks
- 6.0 ACQUISITION REQUIREMENTS
 - 6.1 Applicable Standards
 - 6.1.1 General Standards
 - 6.1.2 Support Environments
 - 6.1.3 Life-Cycle Adaptations and Approved Waivers
 - 6.2 Business Practices, Resources, and Organizational Requirements
 - 6.3 Engineering and Integration Requirements
 - 6.4 Risk Management Requirements
 - 6.5 Configuration Management Requirements
 - 6.6 Classification and Assurance Requirements
 - 6.6.1 Developer's Assurance Requirements
 - 6.6.2 Other Assurance Requirements
 - 6.7 Delivery and Operational Transition Requirements
 - 6.8 Sustaining Engineering and Operations Requirements
 - 6.9 Evolutionary Acquisition Requirements

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM ACQUISITION PLAN DID: SMAP-DID-M100-SY

7.0 ACQUISITION ACTIVITIES PLANNING

- 7.1 Acquisition Activities
 - 7.1.1 Management and Control
 - 7.1.2 Configuration Management
 - 7.1.3 Assurance
 - 7.1.4 Board Support
- 7.2 Acquisition Risks

8.0 ABBREVIATIONS AND ACRONYMS

9.0 GLOSSARY

10.0 NOTES

11.0 APPENDICES

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM ACQUISITION PLAN DID: SMAP-DID-M100-SY

EXPLANATORY NOTE

The purpose of the information system acquisition plan is to provide a definition of the activities that the acquirer must undertake to acquire an information system and to specify management and assurance requirements for the providers. This plan covers all aspects of the life-cycle for the information system including procurement.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

Note: This section should be detailed for all the acquirer's activities included in this volume. A summary may appear in the parent management plan.

4.0 PURPOSE AND DESCRIPTION OF <INFORMATION SYSTEM>

Describe the purpose, scope, and major functions of the information system being acquired by the organization preparing this plan. Couch the description in terms that provide a background for understanding the objectives for the management planning information presented in this volume. If appropriate, reference sections of the information system product specification for additional detail.

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM ACQUISITION PLAN DID: SMAP-DID-M100-SY

5.0 PROCUREMENT ACTIVITIES PLANNING

Describe the procurement activities and events conducted by the acquirer and identify who will be responsible, where the activity will be performed, and when the activities will occur for each planned procurement.

5.1 Procurement Package Preparation

If appropriate, describe the justification for acquisition in terms of:

1) Existing resources:

- o Personnel
- o Equipment
- o Schedule
- o Funding availability

2) Alternatives considered; for each, address:

- o Added resources required
- o Commercial and inheritable capabilities available
- o Potential providers' capabilities
- o Reason for rejection or acceptance of alternative

Describe the steps to be taken to prepare the procurement package, such as:

- o Preparation of a Statement of Work (SOW)
- o Development of a Work Breakdown Structure (WBS)
- o Specification of a Data Requirements List
- o Specification of Contract Line Item Numbers
- o Development of associated schedule and cost information

5.2 Proposal Evaluation

Describe the proposal evaluation and selection activities to include formation of a Source Selection Evaluation Board, evaluation of documentation submitted by the bidders, and standards and practices to be followed. Describe the methods to be employed to evaluate pricing data, personnel qualifications, performance record, schedules, and quality attributes discussed in the proposals.

MANAGEMENT PLAN DOCUMENTATION STANDARD
INFORMATION SYSTEM ACQUISITION PLAN DID: SMAP-DID-M100-SY

5.3 Contract Negotiation

Describe considerations which will govern contract negotiations including:

- o Cost and schedule adjustments
- o Technical and product adjustments
- o Access rights to commercial, reusable, and support computer hardware/software
- o Subcontractor management
- o Reporting requirements

5.4 Procurement Risks

Identify and describe procurement risks and contingencies that need to be assessed and handled during the procurement process. Describe the approach to be used to control or minimize the risks. In particular, address risks affecting at least:

- a) Schedule, especially as affected by availability of personnel and equipment.
- b) Budget, especially as affected by funds allocation process, timing considerations, and costing methods.

NOTE: Add additional subsections as required to describe other procurement activities.

6.0 ACQUISITION REQUIREMENTS

In the following subsections describe specific requirements and implementation constraints imposed by the acquirer on the provider(s). Emphasize "what" is to be done but describe the "how" only to the extent necessary to ensure that deliverables meet the needs of the acquirer.

6.1 Applicable Standards

If these standards are applicable down multiple levels in a system decomposition tree, this section may be documented as a separate rolled-out volume and stored in the standards and procedures repository.

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6.1.1 General Standards

List or otherwise identify the standards specified by the acquirer that are applicable to the development, assurance, and management of the information system, including any engineering and technical standards.

If the acquirer desires that new standards are to be developed by the developer, then this requirement must be included in the Engineering and Integration Requirements. If the acquirer is developing new standards then that activity (plan for that development, etc.) should be included in section 8, Acquisition Activities, and those standards cited here as a requirement.

6.1.2 Support Environments

List or otherwise identify standards specified by the acquirer relating to use of a support environment(s) with respect to the management, development, and assurance of the information system being acquired.

6.1.3 Life-Cycle Adaptations and Approved Waivers

Describe life-cycle adaptations, which include products and reviews, and any approved waivers required by the acquirer in the management, development, and assurance of the information system. Include any life-cycle adaptation requirement for a phased delivery or incremental development approach.

An example of an adaptation may be the use of prototyping in feasibility studies, risk assessments, or design evaluations. Other adaptations may be requested for accommodating integration of systems or components being acquired which are government-furnished equipment (GFE) or commercial off-the-shelf (COTS).

6.2 Business Practices, Resources, and Organizational Requirements

Describe all requirements for providers' business practices, methods, reporting, metrics, etc., to meet the acquirer's needs. Describe any requirements being imposed on the provider with respect to organizational structure, independence of verification and validation, interfaces with the acquirer, other providers, and other external organizations.

Include any other resource requirements such as use of government-furnished equipment or facility access and security requirements.

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6.3 Engineering and Integration Requirements

Describe any requirements the acquirer is imposing on the development provider affecting engineering and integration activities, such as:

- o Phased delivery, or other life-cycle requirements.
- o Metrics, reports, or related information
- o Use of specific tools or support environments
- o Use of techniques, such as prototyping
- o Specific languages, such as use of Ada for software
- o Specific hardware
- o Specific inheritables or re-use
- o Any special security or safety considerations for the engineering and integration process

6.4 Risk Management Requirements

Identify the areas of risk with which the acquirer is especially concerned and wants specifically addressed in the development provider's risk management plan. Describe the acquirer's requirements for the development provider affecting risk evaluation and control, including types of data to be collected and assessed.

6.5 Configuration Management Requirements

Describe the acquirer's requirements for configuration management activities to be addressed by the development provider in the configuration management plan, including any requirements for interface with the acquirer's configuration management. Include any identification (naming) conventions and metrics or other status data required. Include any special security and safety process requirements for configuration management such as access restrictions.

6.6 Classification and Assurance Requirements

The acquirer should specify the risk classification (including safety and security considerations) for the information system with respect to its safety and criticality.

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6.6.1 Developer's Assurance Requirements

Describe the acquirer's assurance requirements for the development provider in terms of:

- o Level of assurance and types of activities; include any special requirements such as those for assurance of safety and security requirements
- o Product and quality assurance methods
- o Constraints affecting assurance approach, scope, or effectiveness
- o Testing methods to be employed, types of testing to be performed, and testing approaches
- o Verification and validation measures to be performed, and degree of independence required
- o Certification activities, if any
- o Products, reports, and metric data to be delivered

6.6.2 Other Assurance Requirements

If providers, other than the development providers and related subcontractors, are performing assurance activities for the acquirer (such as, an independent verification and validation provider), then the requirements for those activities are defined here. The plan for those activities is part of the acquirer's assurance plan (Section 8.1.3) and may be rolled-out at the discretion of the acquirer.

For independent verification and validation of the information system, describe the acquirer's requirements for independent verification and validation in terms of level of assurance, types of activities, and methodologies. For certification of the information system, describe the acquirer's requirements in terms of approach, award of certification, and bonding for certified systems. Also address any recertification requirements.

6.7 Delivery and Operational Transition Requirements

Describe the acquirer's requirements for the development provider such as:

- o Sites and methods for installation
- o Installation support
- o Conversion of existing data to new formats

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- o Acceptance process
- o Provisions for training the users and operators
- o Any special requirements such as for safety and security

6.8 Sustaining Engineering and Operations Requirements

Describe the acquirer's requirements for the sustaining engineering and operations provider for the information system such as:

- a) Planning for support to the end of the information system life-cycle, including:
 - o System hardware and software
 - o Facilities
 - o Support hardware
 - o Support software
- b) Change approval process.
- c) Provision of technical assistance.
- d) Assurance including regression testing and recertification.
- e) Ongoing training activities.
- f) User support.
- g) Preparation and release of change packages.

6.9 Evolutionary Acquisition Requirements

Describe the acquirer's requirements during development of an information system to accommodate evolutionary acquisition of major upgrades (i.e., complete iterations of the life-cycle) of the system.

7.0 ACQUISITION ACTIVITIES PLANNING

The information in this section must be consistent with the WBS schedule and resource information for the acquirer presented in Section 3. This section is a detailed discussion of acquirer's activities.

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7.1 Acquisition Activities

Describe the acquirer's activities with regard to the acquisition and acquirer's assurance of the information system being acquired, including:

- o Monitoring and control activities performed by acquirer
- o Assurance conducted by acquirer
- o Control and review board support
- o Standards development by the acquirer
- o Metrics collection and evaluation

7.1.1 Management and Control

Describe the acquirer's activities relative to management activities during the life-cycle, including monitoring, control of costs, schedules, etc. This section should include a description of the baselining process for products delivered to the acquirer. Define any reports and their content to be generated by this activity. These reports shall be accessible through the acquirer's section of the management control and status reports document for this information system or component.

7.1.2 Configuration Management

Describe the acquirer's activities and plans for configuration management to be performed by the acquirer for products delivered from the providers.

Refer to the Configuration Management Plan DID (SMAP-DID-M920) for a further description of the structure and content for each topic.

7.1.3 Assurance

Describe the activities to be performed by the acquirer (or an assurance provider) for assurance of the information system. Assurance activities include:

- o Review and acceptance testing of products
- o Verification and validation
- o Reliability and maintainability assurance and audits
- o Security and safety assurance
- o Certification

Refer to the Assurance Plan DID (SMAP-DID-930) for a further description of the structure and content for each topic.

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7.1.4 Board Support

Describe the acquirer's activities to be performed in support of control boards, working groups, etc. Define any reports to be generated by that activity. These reports shall be accessible through the acquirer's section of the management control and status reports document for this information system or component.

NOTE: Add other sections as necessary to describe additional support activities performed by the acquirer.

7.2 Acquisition Risks

Identify the management and technological risks that are to be assessed and minimized during the acquisition process by the acquirer. Note that these are risks to be addressed by the acquirer, whereas those in Section 7.3 are to be addressed by the provider. Describe methods to be used to control or minimize the risks.

Refer to the Risk Management Plan DID (SMAP-DID-910) for a further description of the structure and content for each topic.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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EXPLANATORY NOTE

The purpose of the component acquisition plan is to provide a definition of the activities that the acquirer must undertake to acquire a component and to specify management and assurance requirements for the providers. This plan covers all aspects of the life-cycle for the component including procurement.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

Note: This section should be detailed for all the acquirer's activities included in this volume. A summary may appear in the parent management plan.

4.0 PURPOSE AND DESCRIPTION OF <COMPONENT>

Describe the purpose, scope, and major functions of the component being acquired by the organization preparing this plan. Couch the description in terms that provide a background for understanding the objectives for the management planning information presented in this document or volume. If appropriate, reference sections of the component product specification for additional detail.

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5.0 PROCUREMENT ACTIVITIES PLANNING

Describe the procurement activities and events conducted by the acquirer and identify who will be responsible, where the activity will be performed, and when the activities will occur for each planned procurement.

5.1 Procurement Package Preparation

If appropriate, describe the justification for acquisition of the component in terms of:

If appropriate, describe the justification for acquisition in terms of:

1) Existing resources:

- o Personnel
- o Equipment
- o Schedule
- o Funding availability

2) Alternatives considered; for each, address:

- o Added resources required
- o Commercial and inheritable capabilities available
- o Potential providers' capabilities
- o Reason for rejection or acceptance of alternative

Describe the steps to be taken to prepare the procurement package, such as:

- o Preparation of a Statement of Work (SOW)
- o Development of a Work Breakdown Structure (WBS)
- o Specification of a Data Requirements List
- o Specification of Contract Line Item Numbers
- o Development of associated schedule and cost information

5.2 Proposal Evaluation

Describe the proposal evaluation and selection activities to include formation of a Source Selection Evaluation Board, evaluation of documentation submitted by the bidders, and standards and practices to be followed. Describe the methods to be employed to evaluate pricing data, personnel qualifications, performance record, schedules, and quality attributes discussed in the proposals.

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5.3 Contract Negotiation

Describe considerations which will govern contract negotiations including:

- o Cost and schedule adjustments
- o Technical and product adjustments
- o Access rights to commercial, reusable, and support computer hardware/software
- o Subcontractor management
- o Reporting requirements

5.4 Procurement Risks

Identify and describe procurement risks and contingencies that need to be assessed and handled during the procurement process. Describe the approach to be used to control or minimize the risks. In particular, address risks affecting at least:

- a) Schedule, especially as affected by availability of personnel and equipment.
- b) Budget, especially as affected by funds allocation process, timing considerations, and costing methods.

NOTE: Add additional subsections as required to describe other procurement activities.

6.0 ACQUISITION REQUIREMENTS

In the following subsections describe specific requirements and implementation constraints imposed by the acquirer on the provider(s). Emphasize "what" is to be done but describe the "how" only to the extent necessary to ensure that deliverables meet the needs of the acquirer.

6.1 Applicable Standards

If these standards are applicable down multiple levels in a system decomposition tree, this section may be documented as a separate rolled-out volume and stored in the standards and procedures repository.

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6.1.1 General Standards

List or otherwise identify the standards specified by the acquirer that are applicable to the development, assurance, and management of the component, including any engineering and technical standards.

If the acquirer desires that new standards are to be developed by the developer, then this requirement must be included in the Engineering and Integration Requirements. If the acquirer is developing new standards then that activity (plan for that development, etc.) should be included in section 8, Acquisition Activities, and those standards cited here as a requirement.

6.1.2 Support Environments

List or otherwise identify standards specified by the acquirer relating to use of a support environment(s) with respect to the management, development, and assurance of the component being acquired.

6.1.3 Life-Cycle Adaptations and Approved Waivers

Describe life-cycle adaptations, which include products and reviews, and any approved waivers required by the acquirer in the management, development, and assurance of the component. Include any life-cycle adaptation requirement for a phased delivery or incremental development approach.

An example of an adaptation may be the use of prototyping in feasibility studies, risk assessments, or design evaluations. Other adaptations may be requested for accommodating integration of components being acquired which are government-furnished equipment (GFE) or commercial off-the-shelf (COTS).

6.2 Business Practices, Resources, and Organizational Requirements

Describe all requirements for providers' business practices, methods, reporting, metrics, etc., to meet the acquirer's needs. Describe any requirements being imposed on the provider with respect to organizational structure, independence of verification and validation, interfaces with the acquirer, other providers, and other external organizations.

Include any other resource requirements such as use of government-furnished equipment or facility access and security requirements.

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6.3 Engineering and Integration Requirements

Describe any requirements the acquirer is imposing on the development provider affecting engineering and integration activities, such as:

- o Phased delivery, or other life-cycle requirements.
- o Metrics, reports, or related information
- o Use of specific tools or support environments
- o Use of techniques, such as prototyping
- o Specific languages, such as use of Ada for software
- o Specific hardware
- o Specific inheritables or re-use
- o Any special security or safety considerations for the engineering and integration process

6.4 Risk Management Requirements

Identify the areas of risk with which the acquirer is especially concerned and wants specifically addressed in the development provider's risk management plan. Describe the acquirer's requirements for the development provider affecting risk evaluation and control, including types of data to be collected and assessed.

6.5 Configuration Management Requirements

Describe the acquirer's requirements for configuration management activities to be addressed by the development provider in the configuration management plan, including any requirements for interface with the acquirer's configuration management. Include any identification (naming) conventions and metrics or other status data required. Include any special security and safety process requirements for configuration management such as access restrictions.

6.6 Classification and Assurance Requirements

The acquirer should specify the risk classification (including safety and security considerations) for the component with respect to its safety and criticality.

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6.6.1 Developer's Assurance Requirements

Describe the acquirer's assurance requirements for the development provider in terms of:

- o Level of assurance and types of activities; include any special requirements such as those for assurance of safety and security requirements
- o Product and quality assurance methods
- o Constraints affecting assurance approach, scope, or effectiveness
- o Testing methods to be employed, types of testing to be performed, and testing approaches
- o Verification and validation measures to be performed, and degree of independence required
- o Certification activities, if any
- o Products, reports, and metric data to be delivered

6.6.2 Other Assurance Requirements

If providers, other than the development providers and related subcontractors, are performing assurance activities for the acquirer (such as, an independent verification and validation provider), then the requirements for those activities are defined here. The plan for those activities is part of the acquirer's assurance plan (section 8.1.3) and may be rolled-out at the discretion of the acquirer.

In general, independent verification and validation and certification are performed at the information system level. If applicable for this component, describe the acquirer's requirements for independent verification and validation in terms of level of assurance, types of activities, and methodologies. For certification of the component, describe the acquirer's requirements in terms of approach, award of certification, and bonding for certified systems. Also address any recertification requirements.

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6.7 Delivery Requirements

Describe the acquirer's requirements for the development provider such as:

- o Sites and methods for installation
- o Installation support
- o Conversion of existing data to new formats
- o Acceptance process
- o Provisions for training the users and operators
- o Any special requirements such as for safety and security

6.8 Sustaining Engineering Support Requirements

Describe the acquirer's requirements for the sustaining engineering support to be performed by the provider, such as:

- o Provision of technical assistance
- o User support and training
- o Modification and release of product
- o Assurance including regression testing and recertification

7.0 ACQUISITION ACTIVITIES PLANNING

The information in this section must be consistent with the WBS schedule and resource information for the acquirer presented in Section 3. This section is a detailed discussion of acquirer's activities.

7.1 Acquisition Activities

Describe the acquirer's activities with regard to the acquisition and acquirer's assurance of the component being acquired, including:

- o Monitoring and control activities performed by acquirer
- o Assurance conducted by acquirer
- o Control and review board support
- o Standards development by the acquirer
- o Metrics collection and evaluation

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7.1.1 Management and Control

Describe the acquirer's activities relative to management activities during the life-cycle, including monitoring, control of costs, schedules, etc. This section should include a description of the baselining process for products delivered to the acquirer. Define any reports and their content to be generated by this activity. These reports shall be accessible through the acquirer's section of the management control and status reports document for this information system or component.

7.1.2 Configuration Management

Describe the acquirer's activities and plans for configuration management to be performed by the acquirer for products delivered from the providers.

Refer to the Configuration Management Plan DID (SMAP-DID-M920) for a further description of the structure and content for each topic.

7.1.3 Assurance

Describe the activities to be performed by the acquirer (or an assurance provider) for assurance of the component. Assurance activities include:

- o Review and acceptance testing of products
- o Verification and validation
- o Reliability and maintainability assurance and audits
- o Security and safety assurance
- o Certification

Refer to the Assurance Plan DID (SMAP-DID-930) for a further description of the structure and content for each topic.

7.1.4 Board Support

Describe the acquirer's activities to be performed in support of control boards, working groups, etc. Define any reports to be generated by that activity. These reports shall be accessible through the acquirer's section of the management control and status reports document for this information system or component.

NOTE: Add other sections as necessary to describe additional support activities performed by the acquirer.

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7.2 Acquisition Risks

Identify the management and technological risks that are to be assessed and minimized during the acquisition process by the acquirer. Note that these are risks to be addressed by the acquirer, whereas those in Section 7.3 are to be addressed by the provider. Describe methods to be used to control or minimize the risks.

Refer to the Risk Management Plan DID (SMAP-DID-910) for a further description of the structure and content for each topic.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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EXPLANATORY NOTE

The purpose of the information system development plan is to define the process by which the development provider intends to manage, engineer, and assure the development of the information system.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 RISK MANAGEMENT PLANNING

The purpose of the risk management plan is to identify potential risks affecting the development of an information system or component, specify analysis and monitoring methods including data collected, and state measures to control or minimize the effects of the risks.

The primary topics for the plan include:

- o Risk Assessment and Evaluation Process
- o Technical Risks
- o Security Risks
- o Safety Risks
- o Resource Risks
- o Schedule Risks
- o Cost Risks

Refer to the Risk Management Plan DID (SMAP-DID-M910) for a further description of the structure and content under each topic.

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5.0 ENGINEERING AND INTEGRATION PLANNING

The purpose of the engineering and integration plan is to describe the process (i.e., steps and controls) to be employed during the development effort.

The primary topics for the plan are:

- o Methodology and Approach, including use of prototyping
- o Products and Reviews
- o Standards Development Planning
- o Interface Management Control Planning

Refer to the Engineering and Integration Plan DID (SMAP-DID-M240) for a further description of the structure and content under each topic.

6.0 CONFIGURATION MANAGEMENT PLANNING

The purpose of this section is to specify the configuration management process and activities as they relate to the organization preparing the plan.

The primary topics for the plan are:

- o Configuration Management Process Overview
- o Configuration Control Activities
- o Support Environment Requirements and Tools

Refer to the Configuration Management Plan DID (SMAP-DID-M920) for a further description of the structure and content under each topic.

7.0 ASSURANCE PLANNING

The purpose of assurance planning is to specify the activities to be undertaken by the developer to assure that products are being developed in accordance with the acquirer's assurance requirements and to assure the related processes relative to the plans and standards.

The primary topics for the plan are:

- o Assurance Activities Approach
- o Assurance Products Definition, including any Assurance Specification roll-out
- o Assurance Planning, including security, safety, reliability, maintainability, and configuration audits

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and assurance

- o Test Planning
- o Verification and Validation and Certification Planning
- o Support Environment Requirements and Tools

Refer to the Assurance Plan DID (SMAP-DID-M930) for a further description of the structure and content under each topic.

8.0 TRAINING FOR DEVELOPMENT PERSONNEL PLANNING

The purpose of this section is to specify and coordinate the training to be conducted for personnel involved in the development effort.

The primary topics for the plan are:

- o Definition of Personnel Requiring Training
- o Types of Training by Categories of Personnel
- o Plan for the Conduct of Courses

9.0 DELIVERY AND OPERATIONAL TRANSITION PLANNING

The purpose of this section is to specify and coordinate the activities for delivering and installing the information system in the operational environment(s).

The primary topics for the plan are:

- o Site Preparation
- o Delivery Planning
- o Data Conversion Planning
- o User Training Planning
- o Operator Training Planning

Refer to the Delivery and Operational Transition Plan DID (SMAP-DID-M250) for a further description of the structure and content under each topic.

10.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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11.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

12.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

13.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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COMPONENT DEVELOPMENT PLAN DID: SMAP-DID-M200-CO

EXPLANATORY NOTE

The purpose of the component development plan is to define the process by which the development provider intends to manage, engineer, and assure the development of the component.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 RISK MANAGEMENT PLANNING

The purpose of the risk management plan is to identify potential risks affecting the development of an information system or component, specify analysis and monitoring methods including data collected, and state measures to control or minimize the effects of the risks.

The primary topics for the plan include:

- o Risk Assessment and Evaluation Process
- o Technical Risks
- o Security Risks
- o Safety Risks
- o Resource Risks
- o Schedule Risks
- o Cost Risks

Refer to the Risk Management Plan DID (SMAP-DID-M910) for a further description of the structure and content under each topic.

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COMPONENT DEVELOPMENT PLAN DID: SMAP-DID-M200-CO

5.0 ENGINEERING AND INTEGRATION PLANNING

The purpose of the engineering and integration plan is to describe the process (i.e., steps and controls) to be employed during the development effort.

The primary topics for the plan are:

- o Methodology and Approach, including use of prototyping
- o Products and Reviews
- o Standards Development Planning
- o Interface Management Control Planning

Refer to the Engineering and Integration Plan DID (SMAP-DID-M240) for a further description of the structure and content under each topic.

6.0 CONFIGURATION MANAGEMENT PLANNING

The purpose of this section is to specify the configuration management process and activities as they relate to the organization preparing the plan.

The primary topics for the plan are:

- o Configuration Management Process Overview
- o Configuration Control Activities
- o Support Environment Requirements and Tools

Refer to the Configuration Management Plan DID (SMAP-DID-M920) for a further description of the structure and content under each topic.

7.0 ASSURANCE PLANNING

The purpose of assurance planning is to specify the activities to be undertaken by the developer to assure that products are being developed in accordance with the acquirer's assurance requirements and to assure the related processes relative to the plans and standards.

The primary topics for the plan are:

- o Assurance Activities Approach
- o Assurance Products Definition, including any Assurance Specification roll-out
- o Assurance Planning, including security, safety, reliability, maintainability, and configuration audits

MANAGEMENT PLAN DOCUMENTATION STANDARD
COMPONENT DEVELOPMENT PLAN DID: SMAP-DID-M200-CO

and assurance

- o Test Planning
- o Verification and Validation and Certification Planning
- o Support Environment Requirements and Tools

Refer to the Assurance Plan DID (SMAP-DID-M930) for a further description of the structure and content under each topic.

8.0 TRAINING FOR DEVELOPMENT PERSONNEL PLANNING

The purpose of this section is to specify and coordinate the training to be conducted for personnel involved in the development effort.

The primary topics for the plan are:

- o Definition of Personnel Requiring Training
- o Types of Training by Categories of Personnel
- o Plan for the Conduct of Courses

9.0 DELIVERY PLANNING

The purpose of this section is to specify and coordinate the activities for delivering and installing the component.

The topics for the plan include:

- o Support Preparation
- o Delivery and Installation Planning
- o User Training

If the component is part of another component or information system, refer to the Delivery Plan DID (SMAP-DID-M350) for a further description of the structure and content under each topic. If the component is a stand-alone item such as a major software program, refer to the Delivery and Operational Transition Plan DID (SMAP-DID-M250).

10.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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COMPONENT DEVELOPMENT PLAN DID: SMAP-DID-M200-CO

11.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

12.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

13.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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ENGINEERING AND INTEGRATION PLAN DID: SMAP-DID-M240

SMAP-DID-M240

ENGINEERING AND INTEGRATION PLAN

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ENGINEERING AND INTEGRATION PLAN DID: SMAP-DID-M240

EXPLANATORY NOTE

The purpose of the engineering and integration plan is to define the process by which the developer creates and integrates the information system or component.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

Be sure to include resources such as facilities, etc., required to develop the information system or component. These facilities must conform to any safety and security requirements.

4.0 METHODOLOGY AND APPROACH

Describe the overall approach for engineering and integration. Describe applied engineering methods and techniques to be employed during development.

4.1 Development Engineering

Describe the development engineering planning in terms of:

- o Life-cycle definition including use of phased delivery and incremental development, and including product deliveries
- o Statement of applicable standards
- o Engineering methods and techniques, such as requirements analysis approach. Include interfaces between various methods across the life-cycle. Such methods can be

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ENGINEERING AND INTEGRATION PLAN DID: SMAP-DID-M240

rolled-out into a separate methods volume.

- o Trade-off studies, design rationale, etc.
- o If prototyping is intended to be used as a technique within any phase of the life-cycle, then the plan for conducting the prototyping process should be detailed in Section 4.2. Use of the results of prototyping should be incorporated into this development planning section.
- o Informal reviews and walkthroughs
- o Informal engineering notes or products
- o Definition of engineering process and product metrics to be collected and assessed
- o Any special considerations, such as security, which could affect the engineering and integration process
- o Training materials development. If the development of the training materials is a major task, then this may be detailed further (in-line or separately) using the Training Development Plan DID (SMAP-DID-M243).

4.2 Prototyping

The purpose of the Prototyping Plan is to define the prototyping process to be used within a specific phase(s) of life-cycle.

The primary topics for the plan are:

- o Purpose and Objectives
- o Products and By-Products
- o Description of Characteristics and Methods
- o Feasibility and Risks
- o Analysis and Evaluation

Refer to the Prototyping Plan DID (SMAP-DID-M241) for a further description of the structure and content for each topic.

4.3 Integration

Describe the integration approach for the information system or component in terms of the integration methodology applied, including use of phased delivery and incremental development, relationship to informal and formal revisions, and to testing and product assurance. Describe the relationship with developer's integration testing as defined in the product assurance plan.

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4.4 Engineering and Integration Support Environment

Describe the specific engineering and integration environment (such as the SSE for the Space Station Freedom Program) to be used for engineering and integration in terms of:

- o Which techniques and tools are required in what phase, including technical management support and documentation tasks
- o Support for generation and management of reports
- o How to accept and apply new support environment tool releases to the integration environment
- o How to adapt and apply the standard support environment engineering and integration rules and tools for this development. Include a description of the tailoring process.
- o The interface with acquirer's environment for data and product releases (such as TMIS for SSFP)
- o Include any special restrictions on this environment, such as access restriction for security or safety

Also include any interfacing and support software including operating systems, pre-processors, test drivers, test data generators, and post-processors to be used.

5.0 PRODUCTS AND REVIEWS

5.1 Baselining Process

Identify the baselining process to be used for deliverable products and its interface with the acquirer's baselining process defined in the acquisition plan. Include the role of the formal reviews and configuration audits in the baselining process.

5.2 Product Specification Roll-Out Definition

Define which sections of the product specification are applicable to this development and their intended release per life-cycle phase. Define intended roll-out definition for product specification document.

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5.3 Reports

Define what reports are to be generated or managed by the development provider, their frequency, and content. (Samples of specific report forms, and instructions for filling them out, should be included in the standards and procedures repository or an appendix to this document or volume.) All reports shall be accessible through the management control and status reports document for this information system or component.

5.4 Formal Reviews

Describe the formal technical reviews required of the development provider organization. Indicate how each review is to be conducted to assess the degree of completion of the development effort appropriate to the major milestone to which the review pertains. Relate these reviews to the development provider's product assurance activities. The formal reviews should include, but not be limited to, those defined in the Information System Life-Cycle and Documentation Standards.

Describe:

- o How reviews are conducted
- o Who must attend
- o Handling of discrepancies
- o Decision process associated with a review

6.0 STANDARDS DEVELOPMENT PLANNING

The purpose of the Standards Development Plan is to define the management, development, and assurance process to be used for any new standards that must be developed.

The primary topics for the plan are:

- o Plan for developing the standards
- o Development method and product specification content
- o Standards assurance and verification process
- o Support required for the use and enforcement of the standard

If substructure and content description is required for this section, use the Development Plan DID (SMAP-DID-M200) as the model.

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7.0 INTERFACE CONTROL PLANNING

The purpose of the interface control plan is to define the process by which major external interfaces are to be defined and managed.

The primary topics for the plan are:

- o Technical Interfaces
- o Controls

Refer to the Interface Control Plan DID (SMAP-DID-M242) for a further description of the structure and content for each topic.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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SMAP-DID-M241

PROTOTYPING PLAN

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MANAGEMENT PLAN DOCUMENTATION STANDARD
PROTOTYPING PLAN DID: SMAP-DID-M241

EXPLANATORY NOTE

The purpose of the prototyping plan is to define the process by which the developer applies prototyping to reduce the risk(s) of developing or verifying the information system or component.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 PURPOSE AND OBJECTIVES

Describe the purpose and scope of the prototyping process, including in which phase(s) of the life-cycle it is to be used and for what objectives. Generally, prototyping is used to minimize risk by examining factors such as:

- o Technical feasibility
- o Performance capacities
- o Evaluation of alternatives
- o End user interface and "user-friendliness"
- o Safety and reliability features
- o Trade-offs for allocation of requirements among information system components

Describe the specific objectives of the prototyping process to be used and its role in and interface to the development life-cycle.

(If the prototyping process requires a major development for a lab bench or other such facility, then that shall be treated as a separate acquisition and shall require it's own management

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(development) plan, product specification, and assurance specification. This plan shall only address the use of such a facility in the prototyping process.)

5.0 PRODUCTS AND BY-PRODUCTS

Describe the primary products (i.e., reports) of the prototyping process and how these products will be used in the engineering process of the information system or component. For example, the final report from the prototyping process may be an input to the requirements or design of the information system or component.

Reports of prototyping activities shall be accessible through the management control and status reports document for this information system or component.

If applicable, identify the by-products of the prototyping process. By-products may include hardware, software, models, and data which may be reused at management discretion in future prototyping or in development.

6.0 FEASIBILITY AND RISKS

Prototyping in general, is used to reduce risks and evaluate trade-offs. Describe the expected feasibility of using the prototyping process to produce meaningful results for the development trades analysis process. Describe risks in terms of resources (equipment, time, software, etc.), technical factors, etc., and their effect upon the development process.

Consider the following factors, as appropriate:

- o Operational limitations and constraints (e.g., emulation of interfaces) that will inhibit prototyping in a realistic environment
- o Support limitations or constraints that will limit the effectiveness of the prototyping effort
- o Analytical limitations or constraints that will limit the ability to evaluate data resulting from prototyping
- o Resource limitations and constraints that will inhibit realistic representation

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7.0 DESCRIPTION OF CHARACTERISTICS AND METHODS

Describe the characteristics of the prototyping process such as system tools used, software models, hardware bread-boards, etc. Describe prototyping methods to be used, such as simulation, evaluation, use of software and hardware models, mock-ups, etc.

8.0 ANALYSIS AND EVALUATION

Describe the process by which prototyping results will be analyzed. Describe how primary products of the prototyping process will be evaluated prior to incorporation into the development process' engineering analysis and products.

9.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

12.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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INTERFACE CONTROL PLAN

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INTERFACE CONTROL PLAN DID: SMAP-DID-M242

EXPLANATORY NOTE

The purpose of the interface control plan is to define the process by which the developer defines and manages all external interfaces between the developer's information system or component and all users, including human or other information systems or components. It may be appropriate to roll-out this plan when there are major coordination concerns and risks between the developer and the organizations responsible for the interfacing units.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 TECHNICAL INTERFACES

Describe engineering and integration interface control planning in terms of:

- 1) Identify major external interfaces that need to be managed and defined.
- 2) Define the process by which they are to be defined; include designation of working groups responsible for an interface.
- 3) Identify the products of the process, including the external interface requirements and design sections of the product specification, and reports.

Describe all external technical interfaces between the information system or component and its environment, including other systems or components, end users, operators, and

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communications links.

5.0 INTERFACE CONTROLS

Describe the process by which interfaces are controlled, approved, baselined, etc. Describe the relationship of control processes to standard life-cycle reviews and baselines.

6.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

7.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

8.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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TRAINING DEVELOPMENT PLAN DID: SMAP-DID-M243

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TRAINING DEVELOPMENT PLAN

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MANAGEMENT PLAN DOCUMENTATION STANDARD
TRAINING DEVELOPMENT PLAN DID: SMAP-DID-M243

EXPLANATORY NOTE

The purpose of the training development plan is to provide planning for the development and verification of training materials. It is not for the planning for actual training of personnel.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 REQUIREMENTS FOR PERSONNEL TO BE TRAINED

Identify the types of personnel to be trained, categorizing the types as needed to establish training objectives for each.

For each type of personnel to be trained specify:

- o Training goals and objectives
- o Major topics to be addressed in the training
- o Characteristics of the personnel type affecting the training; e.g., educational level, language spoken
- o Number of trainees for each training topic
- o Skill level to be attained through the training
- o Number of persons to be trained (by location if there are multiple sites)

For information systems and operational procedures components be

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sure to address all user and operator classes of personnel.

5.0 CURRICULUM DEVELOPMENT REQUIREMENTS

Describe the plan for preparing curricula for each type of training to be delivered, and for the preparation of related training materials. Include any constraints on length, type, and amount of training for each class of personnel to be trained.

Describe requirements and any constraints for each class of training on the style and media of the training materials such as:

- o Self study modules
- o Classroom lessons
- o Simulation capabilities
- o On-the-job training plans

Lesson plans and other instructional materials that are prepared to implement training may be included here. Note that the actual training materials are part of the product specification associated with a specific product.

6.0 EVALUATION AND MODIFICATION

Describe the process by which the training materials will be evaluated and updated. Include a description of metric and assessment data to be collected.

7.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

8.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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10.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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DELIVERY AND OPERATIONAL TRANSITION PLAN DID: SMAP-DID-M250

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DELIVERY AND OPERATIONAL TRANSITION PLAN

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DELIVERY AND OPERATIONAL TRANSITION PLAN DID: SMAP-DID-M250

EXPLANATORY NOTE

The purpose of the delivery and operational transition plan is to provide the planning for the transition of an information system or stand-alone component from development into its operational phase. This plan may incorporate, if applicable, details contained in the individual component delivery planning sections (or volumes).

This plan is written by the development provider. If the preparation of an operational site is the responsibility of an organization other than the developer, then site preparation planning should be incorporated into the other organization's management plan. In any case, if the preparation of the operational site is a major activity, then a separate development plan for that site should be prepared. The site development plan would follow the standard development plan DID and that plan would be prepared by the organization responsible for the site development.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

Sections 3.3.4 and 3.3.5 describe the equipment and physical site facilities available or needed to support the operational activities. Include in those sections the planning information for the site, such as:

- o Applicable computer resources, support equipment, hardware items, or support software
- o Facility resources
- o Air conditioning, wiring, plumbing descriptions

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DELIVERY AND OPERATIONAL TRANSITION PLAN DID: SMAP-DID-M250

Section 3.3.1 would contain appropriate schedule information; 3.3.2 and 3.3.3 would contain budget and personnel resources necessary to support the site preparation (and operation). The information contained in this section shall be consistent with the plans for the activity descriptions in the following sections of this plan.

4.0 SITE PREPARATION PLANNING

If the developer of the information system is responsible for the preparation of the operational site(s), then the following subsections should be completed. If the site preparation is the responsibility of an organization other than the information system developer, then the site preparation details should be in the other organization's management plan.

4.1 Facility Planning

Describe the preparation for the supporting facility in terms such as:

- o Facility sizing
- o Facility preparation
- o Facility scheduling plan and process
- o Definition of required hardware, support software, facility support (air conditioning, etc.)

4.2 Transition Planning

Describe the preparation for the transition to be provided at the site(s) in terms such as:

- o Transition process including coordination between the developer's engineering personnel and support personnel
- o Overall coordination for preparation and implementation including identification of discrepancies or omissions
- o Identification of transition action items and assignment of responsibility for their completion
- o Ensuring that all manuals and other required information system or component products are available when needed
- o Technical assistance
- o Site personnel to support delivery installation team

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DELIVERY AND OPERATIONAL TRANSITION PLAN DID: SMAP-DID-M250

- o Priority scheduling to ensure adequate information system response
- o Any phase-over transition of safety, security or training responsibilities

5.0 DELIVERY PLANNING

Identify, describe, and schedule the tasks associated with delivery and installation of the information system, in terms such as:

- o Installation plan, in per sites for installation, including transition from developer to operations personnel (include schedule, resources, etc., in Section 3.3)
- o Packaging requirements, in terms of equipment, materials, dates, personnel, and degree of protection needed
- o Shipment requirements, in terms of methods, shippers, dates, estimated size and volume, etc.

6.0 DATA CONVERSION PLANNING

If done by the developer of the information system, identify and describe existing data files and databases that must be converted for use with the information system. Specify how the conversion is to be accomplished.

7.0 USER TRAINING PLANNING

The purpose of this section is to specify what training is to be provided to users (by user classes) and the means, materials, and facilities by which the training will be delivered. (Note: schedule details, etc., are detailed in Section 3.3.)

Topics to be addressed include:

- o Classes of users to be trained
- o Available curriculum
- o Training delivery
- o Assessment and follow-up training
- o Evaluation of adequacy of training curriculum and materials
- o Facility and equipment requirements for conducting training

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If user training is a major effort then this section should be rolled-out (using the management plan template DID) into a separate volume. The structure of the plan content (except for sections specified by the template) is at the discretion of the author.

8.0 OPERATOR TRAINING PLANNING

The purpose of this section is to specify what training is to be provided to personnel who are to operate the information system and apply the operational procedures defined for this information system. In general, this section is not applicable to a stand-alone hardware or software component.

Topics to be addressed include:

- o Classes of users to be trained
- o Available curriculum
- o Training delivery
- o Assessment and follow-up training
- o Evaluation of adequacy of training curriculum and materials
- o Facility and equipment requirements for conducting training

9.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

12.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
SUSTAINING ENGINEERING AND OPERATIONS PLAN DID: SMAP-DID-M300

SMAP-DID-M300

SUSTAINING ENGINEERING AND OPERATIONS PLAN
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MANAGEMENT PLAN DOCUMENTATION STANDARD
SUSTAINING ENGINEERING AND OPERATIONS PLAN DID: SMAP-DID-M300

EXPLANATORY NOTE

The purpose of the sustaining engineering and operations plan is to define the process by which the acquirer plans to maintain, process change requests, and operate the information system. This includes plans for training the users and operators of the information system.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 SUSTAINING ENGINEERING PROCESS

Describe the methods to be used to specify modifications or new functional requirements. Also describe how to translate these requirements into design and how to integrate and test the new system release.

Describe the process by which change requests are to be submitted, classified and analyzed, dispositioned, and scheduled. Include classification categories for requests and any variations in the process. Describe all associated products and reports.

Describe the engineering process, methods, etc. to be used to incorporate approved change requests. Include a description of maintenance procedures for developing on-site and remote diagnostics. Include the method for producing documentation updates (including user support materials) to accompany a release and for distributing them to all operators and end users concerned.

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Describe the process interfaces between sustaining engineering (maintenance) engineers and configuration management, assurance, and operator organizations. Describe interfaces with the user community and how releases are generated and delivered.

Describe the training plan for sustaining engineering, operations, and other support personnel.

This section contains planning activities similar to those in the Engineering and Integration Plan DID (SMAP-DID-M240) plus some activities specific to sustaining engineering and operations. The Engineering and Integration DID (SMAP-DID-M240) may be used as a model for substructure and further description.

5.0 CONFIGURATION MANAGEMENT SUPPORT

Describe the process for the management and control of changes and revised products during sustaining engineering. In particular, specify:

- o Configuration management process and activities
- o Scheduling of changes, and restrictions, for each new version or release of a product
- o Configuration identification of revised products
- o Any special considerations such as access restrictions

Refer to the Configuration Management Plan DID (SMAP-DID-M920) for a further description of the structure and content for this section.

6.0 ASSURANCE PLANNING

Describe requirements for sustaining engineering product assurance, including:

- o Assurance activities and approach
- o Testing including regression
- o Re-validation activities
- o Re-certification activities

Refer to the Assurance Plan DID (SMAP-DID-M930) for a further description of the structure and content for this section.

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7.0 PRODUCT SUPPORT

7.1 User Support

Describe support activities to be established to assist users, such as:

- a) A help desk to respond to problems reported by users and to represent users on change control and review boards.
- b) Support of change request generation and submittal.
- c) Providing users with documentation concerning new and modified capabilities or information in new product releases.

Also describe how an effective interface is to be maintained between users and maintenance (technical) staff.

Describe activities required to report and service error conditions in terms of classes of errors, specific recovery requirements for the various error conditions and any changes or modifications to the system resulting from critical error situations.

7.2 User and Operator Training

The purpose of this section is to specify and coordinate the training to be conducted for end users and operators of the information system or component.

Topics to be addressed include:

- o Classes of users to be trained
- o Available curriculum
- o Training delivery
- o Assessment and follow-up training
- o Evaluation of adequacy of training curriculum and materials
- o Facility and equipment requirements for conducting training

8.0 DELIVERY PLANNING

The purpose of this section is to specify and coordinate the activities for delivering and installing new releases of the information system or component in the operational environment(s).

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SUSTAINING ENGINEERING AND OPERATIONS PLAN DID: SMAP-DID-M300

The primary topics for the plan are:

- o Support Requirements
- o Delivery Planning
- o Data Conversion Planning

Refer to the Delivery Plan DID (SMAP-DID-M350) for a further description of the structure and content under each topic.

9.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe requirements and tools for the engineering and integration support environment (such as the SSE for the Space Station Freedom Program) to be used for assurance in terms of:

- 1) Which techniques and tools are required in what phase, including technical management support and documentation tasks.
- 2) Support for generation and management of reports.
- 3) How to adapt and apply the standard support environment product assurance rules and tools for this process.

10.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

12.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

13.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
DELIVERY PLAN DID: SMAP-DID-M350

SMAP-DID-M350

DELIVERY PLAN

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MANAGEMENT PLAN DOCUMENTATION STANDARD
DELIVERY PLAN DID: SMAP-DID-M350

EXPLANATORY NOTE

The purpose of the delivery plan is to provide the planning for the transition of an operational information system or component from development into its operational phase.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

Sections 3.3.4 and 3.3.5 describe the equipment and physical site facilities available or needed to support the operational activities. Include in those sections the planning information for the site, such as:

- o Applicable computer resources, support equipment, hardware items, or support software
- o Facility resources
- o Air conditioning, wiring, plumbing descriptions

Section 3.3.1 would contain appropriate schedule information; 3.3.2 and 3.3.3 would contain budget and personnel resources necessary to support the site preparation (and operation). The information contained in this section shall be consistent with the plans for the activity descriptions in the following sections of this plan.

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DELIVERY PLAN DID: SMAP-DID-M350

4.0 SUPPORT PREPARATION PLANNING

If the developer of the component or information system is responsible for the preparation of the environment into which this component is being delivered, then the following subsections should be completed. If the environment preparation is the responsibility of an organization other than the component or information system developer, then the environment preparation details should be in the other organization's management plan.

4.1 Environment Planning

Describe the preparation for the supporting environment in terms such as:

- o Environment sizing
- o Environment preparation
- o Environment scheduling plan and process
- o Definition of required hardware and support software

4.2 Transition Planning

Describe the preparation for the transition to be provided at the site(s) in terms such as:

- o Transition process including coordination between developer's engineering personnel and environment support personnel
- o Overall coordination for preparation and implementation including identification of discrepancies or omissions
- o Identification of transition action items and assignment of responsibility for their completion
- o Ensuring that all manuals and other required products are available when needed
- o Technical assistance
- o Priority scheduling to ensure adequate information system response
- o Any phase-over transition of safety, security or training responsibilities

MANAGEMENT PLAN DOCUMENTATION STANDARD
DELIVERY PLAN DID: SMAP-DID-M350

5.0 DELIVERY PLANNING

Identify and describe the tasks associated with delivery of the information system or component and its installation in the environment such as:

- 1) Installation support in terms of locations for installation, installation dates, equipment and personnel resources to be provided.
- 2) Packaging requirements, in terms of equipment, materials, dates, and degree of protection needed.
- 3) Shipment requirements, in terms of methods, shippers, dates, estimated size and volume, etc.

6.0 DATA CONVERSION PLANNING

For data conversions, identify and describe existing data files and databases that must be converted to a new format for use with the information system. Specify what support is to be provided for the conversion.

Schedule and resource for delivery support should be identified in Section 3.3.

7.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

8.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

**MANAGEMENT PLAN DOCUMENTATION STANDARD
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10.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
EVOLUTIONARY ACQUISITION PLAN DID: SMAP-DID-M400-SY

SMAP-DID-M400-SY

INFORMATION SYSTEM EVOLUTIONARY ACQUISITION PLAN

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MANAGEMENT PLAN DOCUMENTATION STANDARD
EVOLUTIONARY ACQUISITION PLAN DID: SMAP-DID-M400-SY

EXPLANATORY NOTE

The purpose of the information system evolutionary acquisition plan is to provide planning for the evolution of an information system. Evolutionary acquisition is used for development of an information system when all the requirements are not known during the initial development and multiple iterations through the life-cycle are required.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 LIFE-CYCLE ITERATIONS

Describe the specific life-cycle iterations for the planning and control of the evolution of the information system in terms such as:

- o The life-cycle definition to be used, including phases, products, reviews, and controls, for each iteration of the information system evolution
- o The criteria and controls to be applied when transitioning from one iteration to the next, including data collected and assessed.

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5.0 REUSABLE AND INHERITABLE COMPONENTS

Describe the reusable and inheritable information systems and components to be used for each evolutionary stage in terms of:

- o Acceptance criteria
- o Constraints and criteria on use of existing (current) information system
- o Documentation requirements
- o Test requirements prior to integration
- o Change approval, implementation, and test requirements

6.0 DESIGN INTEGRITY AND LEGACY

Specify means for maintaining design integrity and tracing the legacy of information systems and components in terms such as:

- o How relationships between technical baselines are to be maintained and assured
- o How configuration management is to be applied to control evolutionary change
- o How technical integrity at each evolutionary stage is to be monitored and assured

7.0 INTEGRATION AND TEST

Describe integration and test of the evolving information system in terms such as:

- o How the evolutionary development will qualify information systems and components
- o How these information systems and components will be qualified after incorporation into each configuration of the evolving information system
- o How technical integrity is to be monitored and assured for inherited or reused information system and components

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
EVOLUTIONARY ACQUISITION PLAN DID: SMAP-DID-M400-SY

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
RISK MANAGEMENT PLAN DID: SMAP-DID-M910

SMAP-DID-M910

RISK MANAGEMENT PLAN

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**MANAGEMENT PLAN DOCUMENTATION STANDARD
RISK MANAGEMENT PLAN DID: SMAP-DID-M910**

EXPLANATORY NOTE

The purpose of the risk management plan is to define the process by which the acquirer or provider identifies, evaluate, and minimize the risks associated with the information system or component.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 RISK ASSESSMENT AND EVALUATION PROCESS

Describe the plan for risk reduction or control. Be sure to address each of the following topics:

- 1) Describe the process to be used to identify the risks affecting acquisition or development of the information system or component, assess the potential impact of each, and determine measures to control or reduce them. Describe the risk evaluation approach including assessment of the impact on the entire information system or component should any subordinate component be delivered late or be non-compliant.
- 2) Describe the measures for continual assessment and monitoring of risks throughout the life-cycle including specific data to be collected. Include approaches to control risks where possible, or to minimize the impact of risks that cannot be controlled.
- 3) For each of the risk categories (Sections 5-10), describe what measures are to be taken to monitor the risk level,

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RISK MANAGEMENT PLAN DID: SMAP-DID-M910

control the degree of susceptibility to that risk category, or minimize the potential effects of the risks.

- 4) Define the reports to be generated and their content. All reports shall be accessible through the management control and status reports document for this information system or component.

5.0 TECHNICAL RISKS

Describe the continuing analysis to be performed of the risks associated with technical parameters, including:

- o Methods of risk assessment (e.g. prototyping)
- o Testing requirements
- o Contingency development plans
- o Critical milestones used to track and reassess risks

6.0 SAFETY RISKS

Describe the safety risks and contingencies in terms of:

- o Safety risk analysis
- o Safety decision methodology
- o Adequacy of product assurance to ensure safety
- o Configuration management and procedures that impact safety

7.0 SECURITY RISKS

Describe security risks and contingencies in terms of:

- o Security threat analysis
- o Security decision methodology
- o Formal security policy model including discretionary and mandatory access control enforcement
- o Configuration management and procedures for secure distribution of the system to sites

8.0 RESOURCE RISKS

Describe resource risks and contingencies in terms of resource definition and allocation methodology as well as personnel, facilities, and equipment availability.

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9.0 SCHEDULE RISKS

Describe schedule risks and contingencies in terms of schedule definition, assignment of responsibilities, source availability, and tracking. Consider impact of schedules from resource risks such as equipment and personnel availability.

10.0 COST RISKS

Describe development cost risks and contingencies including assessment of:

- o Precision of cost estimates
- o Effects of schedule changes
- o Changes in funds allocation
- o Costing methodology
- o Accounting methods and practices

11.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

12.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

13.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

14.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
CONFIGURATION MANAGEMENT PLAN DID: SMAP-DID-M920

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CONFIGURATION MANAGEMENT PLAN

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CONFIGURATION MANAGEMENT PLAN DID: SMAP-DID-M920

EXPLANATORY NOTE

The purpose of the configuration management plan is to define the process by which the acquirer or provider configuration manages the information system or component products.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 CONFIGURATION MANAGEMENT PROCESS OVERVIEW

Provide an overview of the configuration management process. Discuss the various activities and summarize the flow of information and products developed within the configuration management structure. Include a description of the process of incorporating products received into the baselines maintained by the preparing organization. Be sure to address any access restrictions.

Describe the configuration management information flow in terms of a flow chart or similar graphic. Show each review and control board in the context of the information flow. Summarize change control reports to be generated and how they are to be tracked.

If appropriate, describe special considerations for security that are to be supported by configuration management, such as analyzing proposed changes for adverse effects on security or recording each access to secure data under configuration control.

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CONFIGURATION MANAGEMENT PLAN DID: SMAP-DID-M920

5.0 CONFIGURATION CONTROL ACTIVITIES

The purpose of this section is to identify and describe the activities to be performed by a configuration control staff and associated organizations. Address at least the following topics and include others, such as document revision and technical information center activities, as appropriate.

5.1 Configuration Identification

Describe the configuration identification process and standards for all items in the information system configuration(s). Include a description of each provider's developmental configuration with respect to the methods used by the provider in establishing the configuration and identifying its contents.

Methods for establishing a configuration shall include the manner of identifying (e.g., naming, marking, numbering) the system and its associated components.

5.2 Configuration Change Control

Describe configuration change control responsibilities and activities to be used in maintaining and controlling changes to baselined products, including those identified in the following subsections.

5.2.1 Controlled Storage and Release Management

Describe the methods and activities to be used to formally control the receipt, storage, handling, and release of deliverable configuration items. Specify needs and methods for restricting access to controlled items. Be sure to address any special considerations such as measures taken to ensure security and privacy: e.g., access restrictions, consisting of codes to protect data and system integrity against unauthorized use.

5.2.2 Change Control Flow

Discuss the initiation, transmittal, review, disposition, implementation, and tracking of discrepancy reports and change requests. Use a graphic representation of the change control flow if this provides clarity.

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5.2.3 Change Documentation

Describe each report used in the configuration management process and explain its purpose and use. Include an example of each report form or cite the location where the forms can be found (e.g., in the appropriate standards and procedures repository).

For each report:

- 1) Describe the function of this report.
- 2) Identify who may initiate the report.
- 3) Describe subsequent handling and updating of the report.

All reports shall be accessible through the management control and status reports document for this information system or component. Also describe any metric data to be collected and analyzed.

5.2.4 Change Review Process

Describe the process by which each control and review board for configuration management carries out its responsibilities and functions. Describe how each board will provide historical traceability with respect to the configuration identification scheme.

5.3 Configuration Status Accounting

Define the configuration status accounting system's records and reports in terms of purpose, general content, and accessibility.

6.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe the use for configuration management of the capabilities, rules, and tools provided by the support environment. For example:

- o Controlled storage facilities
- o Discrepancy and change reporting facilities
- o Records management capabilities
- o Access control capabilities

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7.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

8.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

MANAGEMENT PLAN DOCUMENTATION STANDARD
ASSURANCE PLAN DID: SMAP-DID-M930

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ASSURANCE PLAN

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MANAGEMENT PLAN DOCUMENTATION STANDARD
ASSURANCE PLAN DID: SMAP-DID-M930

EXPLANATORY NOTE

The purpose of the assurance plan is to specify the conduct of quality assurance, quality engineering assurance, safety assurance, security and privacy assurance, testing, verification and validation, and certification during the acquisition or development of an information system or component.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 ACTIVITIES AND APPROACH

Describe the types of product assurance activities to be conducted including testing, quality assurance, quality engineering assurance, safety assurance, security and privacy assurance, and verification and validation (V&V) for products and (where applicable) processes. Demonstrate how the approach meets assurance requirements for the risk classification of the information system or component.

Describe the specific products of these assurance activities including:

- o The applicable sections and roll-out structure of the assurance specification
- o Reports, their frequency, and content
- o Metric data to be collected and assessed

Further detail of the structure and content of the products may be specified in Sections 5 through 11.

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ASSURANCE PLAN DID: SMAP-DID-M930

5.0 QUALITY ASSURANCE PLANNING

The purpose of this section is to specify the measures and activities to be undertaken to assure the quality of the acquisition or development processes (including configuration management) and their resultant products. Planning shall include activities and measures to assure quality and to evaluate the degree of conformance to plans, standards, and procedures specified in the management plan.

Also specify the structure, including roll-out, for the quality assurance section of the assurance specification.

Refer to the Quality Assurance Plan DID (SMAP-DID-M931) for a further description of the structure and content of this section.

6.0 TEST PLANNING

The purpose of this section is to specify plans for testing products. The testing activities vary between acquirer and development provider and between components and information systems. In general, the acquirer only conducts acceptance testing. The development provider conducts unit testing for components, integration testing and, if required by the acquirer, acceptance testing.

Refer to the Test Plan DID (SMAP-DID-M932) for a further description of the structure and content of this section.

7.0 QUALITY ENGINEERING ASSURANCE PLANNING

The purpose of this section is to specify plans for conducting quality engineering assurance. Planning shall include activities and measures to assure reliability, maintainability, and other similar quality factors specified in the product specification.

Refer to the Quality Engineering Assurance Plan DID (SMAP-DID-M933) for a further description of the structure and content of this section.

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8.0 SAFETY ASSURANCE PLANNING

The purpose of this section is to specify plans for verifying and validating the safety requirements of the information system or component. The specific activities involved in performing this assurance may vary between acquirer and providers. In general, the assurance activities for safety are at the system level.

Refer to the Safety Assurance Plan DID (SMAP-DID-M934) for a further description of the structure and content of this section.

9.0 SECURITY AND PRIVACY ASSURANCE PLANNING

The purpose of this section is to specify plans for verifying and validating the security and privacy requirements of the information system or component. These activities vary between acquirer and providers and between information system and components. In general, the assurance activities for security and privacy are at the system level.

Refer to the Security and Privacy Assurance Plan DID (SMAP-DID-M935) for a further description of the structure and content of this section.

10.0 VERIFICATION AND VALIDATION PLANNING

The purpose of this section is to specify the plans for conducting verification and validation activities to be performed, the methods to be employed, and the degree of independence required. Verification is defined as the process of determining whether or not the products of a given phase of the life-cycle fulfill the design established during the previous phase (i.e., did the job right). Validation is defined as the process of evaluating whether products are in compliance with the requirements (i.e., did the right job).

The primary topics for the verification and validation plan include:

- o Definition of Activities
- o Methodology and Approach
- o Verification and Validation Reports
- o Support Environment Requirements and Tools

Refer to the Verification and Validation Plan DID (SMAP-DID-M936) for a further description of the structure and content for each topic.

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11.0 CERTIFICATION PLANNING

The purpose of this section is to define the planning for conducting certification activities for products having a high risk classification. In general, certification is conducted by the acquirer (or designee) of an information system.

The primary topics for the certification plan include:

- o Definition of Certification Activities
- o Methodology and Approach
- o Certification Controls, Reviews, and Audits
- o Support Environment Requirements and Tools

Refer to the Certification Plan DID (SMAP-DID-M937) for a further description of the structure and content for each topic.

12.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

13.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

14.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

15.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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QUALITY ASSURANCE PLAN

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QUALITY ASSURANCE PLAN DID: SMAP-DID-M931**

EXPLANATORY NOTE

The purpose of the quality assurance plan is to specify the conduct of quality assurance activities for an information system, component, or related development process. This plan is often prepared and executed by the SRM&QA organization.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 QUALITY ASSURANCE APPROACH AND ACTIVITIES

The purpose of this section is to describe the detailed quality assurance activities for assessing the conformance to standards and plans of the information system or component products and related processes.

Specify and define the reviews and audits to be conducted to assure that both processes and products fulfill the management plan requirements and designated standards and procedures. Address at a minimum the following:

- o Assurance activities to be performed in conjunction with formal reviews (e.g., Preliminary Design Review (PDR) or Critical Design Review (CDR)), for the purpose of evaluating the quality of the products being reviewed
- o Auditing activities to be conducted to assess quality of performance of management, technical, and assurance processes

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- o Auditing activities to be conducted to identify the specific contents of delivered products and configuration-controlled baselines, such as physical configuration audits and functional configuration audits
- o Evaluation of the effectiveness of problem reporting, corrective action, and change control and configuration management practices

The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

5.0 QUALITY ASSURANCE METHODS AND TECHNIQUES

The purpose of this section is to describe the methods and techniques to be used for all quality assurance activities listed in Section 4.

6.0 QUALITY ASSURANCE PRODUCTS

Describe the specific format and structure of the products produced by the activities given in Section 4. These products are the appropriate quality assurance section of the assurance specification document and reports (such as review or audit reports) that are to be incorporated in the management control and status reports document. Also describe metric data to be collected and assessed.

7.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe the requirements that the methods and techniques, listed in Section 5, impose on a support environment or tool set. The requirements will usually include the need for the support environment to support the standards adopted by the program or project. State how these requirements will be met.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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SMAP-DID-M932

TEST PLAN

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MANAGEMENT PLAN DOCUMENTATION STANDARD
TEST PLAN DID: SMAP-DID-M932

EXPLANATORY NOTE

The purpose of a test plan is to specify the conduct of a test or group of related tests for an information system or component. This DID is to be used for each level of testing for both information system and components and by both the acquirer and the providers.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 TEST APPROACH AND ACTIVITIES

Describe the overall plan for types (unit, integration, acceptance) of testing. Discuss also priorities or particular emphasis on testing, such as reliability and maintainability requirements. Include test management assurance planning for verifying that test standards have been established and followed, all test requirements have been satisfied, and all test results have been recorded properly. Accommodate any phased delivery or incremental development considerations.

Also specify the structure, including roll-out, for the testing section(s) of the assurance specification.

Describe the process to be followed if tests fail, and for retesting after products are updated or patched.

Specify requirements for test reviews prior to and at the conclusion of testing.

Describe the test results reports required. (The reports

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themselves will be included under the management control and status reports document.)

The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

5.0 TESTING METHODS AND TECHNIQUES

The purpose of this section is to describe the methods and techniques to be used for all testing activities listed in Section 4. This should include automated and manual method(s) used to generate test and test data from design (for integration testing) or requirements (acceptance testing), and methods for generating and conducting tests. Testing methods include path analyses, boundary checking, stress testing, reliability, and simulations.

6.0 TEST PRODUCTS

Describe the specific format and structure of the products produced by the activities given in Section 4. These products are the appropriate testing section of the assurance specification document and test reports that are to be incorporated in the management control and status reports document. Also describe metric data to be collected and assessed.

7.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe the requirements that the methods and techniques, listed in Section 5, impose on a support environment or tool set. State how these requirements will be met.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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QUALITY ENGINEERING ASSURANCE PLAN

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EXPLANATORY NOTE

The purpose of the quality engineering assurance plan is to specify the conduct of quality engineering assurance activities for an information system or component.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 QUALITY ENGINEERING ASSURANCE APPROACH AND ACTIVITIES

The purpose of this section is to describe the detailed quality engineering assurance activities for assessing the quality factors (reliability, maintainability, etc.) of the information system or component products as specified in the product specification and acquisition plan requirements.

Specify and define:

- o Reliability-related activities, including analyses of failure probabilities and failure rates, as well as plans for use of math models and diagrams, tools, and Failure Modes and Effects Analysis (FMEA).
- o Maintainability-related activities, including plans for hardware packaging so as to facilitate maintenance, plans for software maintainability, such as module or unit cohesion, coupling, and employment of coding standards, and expectations for the system in terms of Mean Time to Repair (MTTR).
- o Other quality factors - the other "ilities" - as specified

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in the product specification and requirements section of the acquisition plan.

The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

5.0 QUALITY ENGINEERING ASSURANCE METHODS AND TECHNIQUES

The purpose of this section is to describe the methods and techniques to be used for all quality engineering assurance activities listed in Section 4.

6.0 QUALITY ENGINEERING ASSURANCE PRODUCTS

Describe the specific format and structure of the products produced by the activities given in Section 4. These products are the appropriate quality engineering assurance section of the assurance specification document and reports (such as analysis reports) that are to be incorporated in the management control and status reports document. Assurance information recorded in the assurance specification document for quality engineering assurance should provide numeric measures of the quality factors being evaluated, such as Mean Time Between Failures (MTBF) or expectations of time to repair or recalibrate, whenever possible. Also describe metric data to be collected and assessed.

7.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe the requirements that the methods and techniques, listed in Section 5, impose on a support environment or tool set. The requirements will usually include the need for the support environment to support the standards adopted by the program or project. State how these requirements will be met.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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SAFETY ASSURANCE PLAN

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EXPLANATORY NOTE

The purpose of the safety assurance plan is to provide planning for the assurance of the safety requirements for the information system or component. The statement of the safety requirements for the information system or component appear in the product specification or the requirements section of the acquirer's acquisition plan. The statement of how safety requirements are to be met appears in the product specification.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 SAFETY ASSURANCE APPROACH AND ACTIVITIES

Describe the overall approach to be used to perform the safety assurance activities for an information system or component. Describe the specific activities to be conducted such as fault tolerance analysis, hazard analysis, and potential contributions to system mishaps.

Describe the overall approach to be used to perform safety assurance activities for an information system or component. Describe the specific activities with respect to analysis and review of specific aspects in terms such as:

- o system or component hazards
- o fault tolerance at system or component level
- o safety criteria such as fail-safe, fail-soft, and fail-operational

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This will typically include stating how the safety requirements defined in the product specification for a product will be assured.

The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

5.0 SAFETY ASSURANCE METHODS AND TECHNIQUES

The purpose of this section is to describe the methods and techniques to be used for all safety assurance activities listed in Section 4.

6.0 SAFETY ASSURANCE PRODUCTS

Describe the specific format and structure of the products produced by the activities given in Section 4. These products are the appropriate safety assurance sections of the assurance specification document and reports that are to be incorporated in the management control and status reports document. Describe metric data to be collected and assessed.

7.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe the requirements that the methods and techniques, listed in Section 5, impose on a support environment or tool set. The requirements will usually include the need for the support environment to support the standards adopted by the program or project. State how these requirements will be met.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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SECURITY AND PRIVACY ASSURANCE PLAN

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EXPLANATORY NOTE

The purpose of the security and privacy assurance plan is to provide planning for the assurance of the security and privacy aspects of the information system or component. The security and privacy requirements for the information system or component appear in the product specification or the requirements section of the acquirer's acquisition plan. The statement of how security and privacy requirements are to be met appears in the product specification.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 SECURITY AND PRIVACY ASSURANCE APPROACH AND ACTIVITIES

Describe the overall approach to be used to perform security and privacy assurance activities for an information system or component. Describe the specific activities with respect to analysis and review of specific security and privacy aspects in terms of degree of integrity, minimization or potential for abuse or misuse, and maintenance of continuity of operations. Aspects may include:

- o effective and accurate operations
- o protection from unauthorized alteration, disclosure, use or misuse of information processed, stored, or transmitted
- o maintenance of continuity of automated information support

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- o incorporation of management and operational controls
- o appropriate technical, administrative, environmental, and access safeguards

The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

5.0 SECURITY AND PRIVACY ASSURANCE METHODS AND TECHNIQUES

The purpose of this section is to describe the methods and techniques to be used for all security and privacy assurance activities listed in Section 4.

6.0 SECURITY AND PRIVACY ASSURANCE PRODUCTS

Describe the specific format and structure of the products produced by the activities given in Section 4. These products are the appropriate security and privacy assurance sections of the assurance specification document and reports that are to be incorporated in the management control and status reports document. Describe metric data to be collected and assessed.

7.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe the requirements that the methods and techniques, listed in Section 5, impose on a support environment or tool set. The requirements will usually include the need for the support environment to support the standards adopted by the program or project. State how these requirements will be met.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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VERIFICATION AND VALIDATION PLAN

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EXPLANATORY NOTE

The purpose of the verification and validation plan is to define the process by which the acquirer or provider performs verification and validation. Note that this plan covers both verification and validation (typically done by the provider or designee for an information system or component) and independent verification and validation that is typically done for an information system by the acquirer or designee.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 OVERALL VERIFICATION AND VALIDATION APPROACH

Describe the overall approach that is to be taken to verification and validation, including the degree of independence for verification and validation. (The specifics of the organizational relationships should be documented in Section 3.)

5.0 VERIFICATION PLANNING

5.1 Verification Approach and Activities

Describe the overall approach to be used to verify the information system or component across the entire life-cycle. Describe the specific verification activities to be conducted, such as reviews, audits, or inspections, to support the verification approach. If appropriate, necessary specify by life-cycle phase.

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The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

5.2 Verification Methods and Techniques

Describe the specific methods and techniques to be used for all the verification activities listed in Section 5.1, such as the review of requirements tracing.

5.3 Verification Products

Describe the specific format and structure of the products produced by the activities given in Section 5.1. These products are the appropriate verification and validation section of the assurance specification document and reports (such as review or audit reports) that are to be incorporated in the management control and status reports document. Also describe metric data to be collected and assessed.

5.4 Support Environment Requirements and Tools

Describe the requirements that the methods and techniques, listed in Section 5.2, impose on a support environment or tool set. State how these requirements will be met.

6.0 VALIDATION PLANNING

6.1 Validation Approach and Activities

Describe the overall approach to be used to validate the information system or component. State the level of user involvement. Describe the specific validation activities to be conducted, such as testing, reviews, or audits to support the validation approach.

The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

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6.2 Validation Methods and Techniques

Describe the particular methods and techniques to be used for all the validation activities listed in Section 6.1.

6.3 Validation Products

Describe the specific format and structure of the products produced by the activities given in Section 6.1. These products are the appropriate verification and validation sections of the assurance specification document and reports (such as review or testing reports) that are to be incorporated in the management control and status reports document. Also describe metric data to be collected and assessed.

6.4 Support Environment Requirements and Tools

Describe the requirements that the methods and techniques, listed in Section 6.2, impose on a support environment or tool set. State how these requirements will be met.

7.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

8.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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CERTIFICATION PLAN

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CERTIFICATION PLAN: SMAP-DID-M937

EXPLANATORY NOTE

The purpose of the certification plan is to specify the certification process and activities for an information system or component.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

The structure and content description to be used when preparing this section is described in detail in the Management Plan Template DID (SMAP-DID-M999).

4.0 CERTIFICATION APPROACH AND ACTIVITIES

Describe the overall approach to be used to certify the information system or component. Describe the specific certification activities to be conducted, such as tests, reviews, audits, or inspections, to support the certification approach.

The schedule, required resources, and milestones related to the activities in this section are documented in Section 3.

5.0 CERTIFICATION METHODS AND TECHNIQUES

The purpose of this section is to describe the methods and techniques to be used for all certification activities listed in Section 4.

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6.0 CERTIFICATION PRODUCTS

Describe the specific format and structure of the products produced by the activities given in Section 4. These products are the appropriate certification section of the assurance specification document and certification reports that are to be incorporated in the management control and status reports document. Also specify any metric data to be collected and assessed.

7.0 SUPPORT ENVIRONMENT REQUIREMENTS AND TOOLS

Describe the requirements that the methods and techniques, listed in Section 5, impose on a support environment or tool set. State how these requirements will be met.

8.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

9.0 GLOSSARY

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

10.0 NOTES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

11.0 APPENDICES

Refer to the Management Plan Template DID (SMAP-DID-M999) for the detailed description of content for this section.

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SMAP-DID-M999
MANAGEMENT PLAN TEMPLATE
DATA ITEM DESCRIPTION

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EXPLANATORY NOTE

The purpose of the template is to describe the set of common sections that are to appear in the document specified by this documentation standard and in any rolled-out volumes. When using this template for the document itself, rather than for a rolled-out volume, substitute "Document" for "Volume" in the following.

1.0 INTRODUCTION

1.1 Identification of Volume

Identify this physical volume in terms of its relationship to the parent document(s) in the documentation set for this information system or component. For documentation set documents, identify the parent(s) in the decomposition tree for the information system. For example:

"This is the Configuration Management Plan Volume of the Software Management Plan for the XYZ Information System."

A short description of the parent(s) document or volume may be included here if it adds clarification.

1.2 Scope of Volume

Describe the area of cognizance, responsibility, and applicability for this volume.

1.3 Purpose and Objectives of Volume

Describe the purpose and objectives for this volume concisely and in specific terms.

1.4 Volume Status and Schedule

Describe the status, including goals and dates, for production or revision of the volume. Documentation is often generated incrementally or iteratively. If this is the case for this volume, also summarize here the planned updates and their release dates.

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1.5 Volume Organization and Roll-Out

Briefly describe what is presented in each major section within this version of the volume and what is in each appendix.

If any sections are rolled-out into subordinate volumes of this volume, then cite those volumes and provide a documentation tree pointing to the subordinate volumes and relating them to the parent.

2.0 RELATED DOCUMENTATION

The purpose of this section is to provide the references or bibliography for this volume.

Cite documents by short or common title (if any), full title, version or release designator (if appropriate), date, publisher or source, and document number or other unique identifier.

2.1 Parent Documents

Begin this section as follows, depending upon whether this is a volume of a document or the document itself:

"The following document(s) is (are) parent to this volume:"

or:

"The following document(s) is (are) the parent from which this document's scope and content derive:"

If this is a document, cite the appropriate document at the next higher level. For example, an Information System Management Plan would cite the management plan for the next higher level information system, or the Software Product Specification would cite the Software Management Plan and the parent's product specification. If there is no higher level, state "None." here.

If this is a volume rolled-out from a document, cite that document. If this is a volume rolled-out from another volume, cite each volume in the hierarchical path back to the parent document, starting with the volume immediately superior to this one.

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2.2 Applicable Documents

Begin this section as follows:

"The following documents are referenced herein and are directly applicable to this volume:"

Provide the citations for every document (other than the parent) referenced within this volume, or which are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

2.3 Information Documents

Begin this section as follows:

"The following documents, although not directly applicable, amplify or clarify the information presented in this volume, and are not binding:"

or, use an appropriate introduction to indicate the relationship of the documents listed here to this volume.

3.0 RESOURCES, BUDGETS, SCHEDULES, AND ORGANIZATION

When preparing a plan, it should be noted that the Section 3 information for a specific activity may be documented:

- 1) in the volume which contains the planning information for that activity;
- 2) in a parent volume/document of the volume which contains the planning information for that activity; OR
- 3) in a contract which documents either option 1 or 2 above.

For example, if a configuration management plan is rolled-out from an acquisition plan, the resources, budgets, schedules, and organization (i.e., Section 3) for the configuration management activity may be contained in Section 3 of the configuration management plan volume. Alternatively, Section 3 of the parent acquisition plan volume may contain the detailed resources, budgets, schedules, and organization for the configuration management activity. Section 3 of the configuration management plan volume, then, would contain only a reference to Section 3 of the parent acquisition plan volume.

In some cases all Section 3 type materials are detailed in a contract. In such cases, Section 3 of the volumes should contain a pointer to the contract.

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3.1 Business Practices Definition and Revision Process

3.1.1 Definition of Activities

Define the practices, tasks, and activities to be accomplished as the basis for budgeting, scheduling, etc.

3.1.2 Method and Approach

Describe the method and approach for the business practices to be employed in managing the activities that are the subject of this plan. For example:

- o Determining measurable cost projections
- o Determining feasible schedule projections
- o Identifying and analyzing major risks and contingencies
- o Analyzing possible impacts of proposed changes
- o Analyzing cost effectiveness
- o Determining overhead (indirect cost) rates and allocation
- o Schedule performance

3.1.3 Reporting, Monitoring, and Revision

List the status, performance, review, change request, lessons learned, etc. reports to be used for monitoring and controlling the activities that are the subject of this plan and specify for each report:

- o Purpose
- o Summary of content
- o Who is responsible for generation
- o Schedule of submission
- o Distribution
- o Access restrictions
- o Analysis to be performed on report data
- o Retention period
- o Retention location

Procedures governing the preparation, routing, storage, modification, etc. of reports are included in the repository of procedures, guides, practices, etc. that supplements the information system or component documentation set. The reports themselves are included in, or tracked by, the Management Control and Status Reports document for the information system or component.

Describe the monitoring process to identify and react to:

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- o Problems that require management attention
- o Variances in actual versus planned cost performance
- o Variances in labor, overhead, scrap, and other rates upon which budget and actual costs are based.
- o Variances in actual versus planned schedule performance
- o Variances in specified versus actual product quality, including documentation
- o Other significant differences between actual and planned performance

Describe the revision process including analysis of the effects of both authorized changes and replanning actions on technical performance, schedules, or cost. Also describe the process for obtaining authorized changes and for revising budgets and schedules.

Explicitly prohibit retroactive changes to records pertaining to work performed that will change previously reported amounts for direct costs, indirect costs, and budgets, except for normal accounting adjustments.

Specify cost control measures to be employed, and describe how costs are to be monitored.

3.2 Work Breakdown Structure (WBS)

Describe the logical structure for managing acquisition and development (or relevant section thereof) by means of a Work Breakdown Structure schema that is coordinated with the resource allocation described in Section 3.3. An activities-oriented, rather than an organization- or product-oriented, WBS is recommended. The level of detail given in the work breakdown structure should be sufficient to support sound management practices. Further, it may be appropriate that the work breakdown structure be placed in a management planning system and a pointer to that information given in this section.

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3.2.1 Activity Definition

For purposes of the WBS, identify the activities to be undertaken. Define these in terms of:

- 1) A descriptive statement in operational terms of activities.
- 2) Identification of the data products to be delivered.

Describe the Work Breakdown Structure (WBS) in terms of:

- 1) A hierarchical structure for controlling the sequences and interdependencies of key activities and responsibilities.
- 2) Setting objectives and ground rules.
- 3) Relating activities to data products.

The number of WBS levels required is a function of such factors as:

- o Size of effort
- o Volume of activity
- o Cost account structure
- o Number of personnel engaged in a WBS activity
- o Task duration and schedule
- o Number of milestones in each task
- o Implementation cost
- o Risk assessment

3.2.2 Cost Account Definition

Identify and define the cost accounts to be associated with the WBS and its structure. For example, a cost account may be established for each level in the WBS and for each cost category such as direct labor, material, and indirect costs.

Describe cost accounting methods to be used in such terms as:

- o cost centers
- o performance control systems
- o calculation of budgeted cost of work scheduled
- o calculation for budgeted cost of work performed
- o analysis of variance

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3.3 Resource Estimation and Allocation to WBS

The purpose of this section is to list and describe the resources available to support the activities defined in the WBS. The resources may include funds, personnel, facilities, government furnished equipment (GFE), available stocks of hardware components, reusable software libraries, etc.

3.3.1 Schedules

Present the schedules on which performance and resource planning are based. Depending upon the scope and complexity of the activities that are the subject of the plan, schedules may be presented at several levels: a master schedule, intermediate level schedules, and detailed schedules. It may be appropriate to place schedule information in a management planning system and a pointer to that information given in this section. Note that all schedule information should be included in this section only.

Schedules are normally based on the accomplishment of identified milestones. Milestones frequently mark transition points at which a data product is passed from one activity to another. Supplement major milestones with intermediate ones to provide frequent points at which progress can be assessed. Identify milestones in terms of a product or measurable event, a date, and a brief description.

Describe the master schedule in terms of:

- o Specific activities
- o Organizations affected
- o Specific milestones and deliverables
- o Delivery dates for acquired products and services

Describe subordinate schedules to be developed by performing organizations if their plans are incorporated within this volume. Detailed subordinate schedules may be integrated into intermediate-level schedules and finally into the master schedule. Prepare subordinate schedules for each activity being managed.

Scheduling detail includes:

- o Major and intermediate milestones (usually marking the delivery of a data product from one organization to another)
- o Unique units of work
- o Start and completion dates

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- o Responsibility for performing the work
- o Integration with detailed engineering, manufacturing, and other schedules as applicable
- o Ongoing, level-of-effort type activities for which discrete portions with starting and ending dates cannot be identified

3.3.2 Funds and Budgets

The purpose of this section is to establish the funding plan and budgets for the activities that are the subject of this plan.

Describe the funding plan, if applicable, in terms of funding projections, the rate of expenditure of allotted funds, and the funding year with respect to the calendar or fiscal year. Termination costs incurred in the event that an activity is terminated at any point in time must also be incorporated.

Describe funding limits in terms of total monetary obligation, yearly funding limits, overrun alternatives including company-provided funds, customer-approved rescheduling to reduce rate of expenditure, and termination of work when funding expires.

Describe the budget, and considerations affecting the budgeting process, in such terms as:

- 1) The cost, size, complexity, and importance of the activity for which the budget is being prepared.
- 2) Negotiation schedules.
- 3) Lower-level cost authorization procedures.
- 4) The types of cost accumulations to be used.
- 5) Target budgets for each organization and major activity, including such elements as:
 - a) Direct labor, by labor category.
 - b) Materials, in dollars.
 - c) Other direct costs.
 - d) Cost-time relationship from start to completion dates.
 - e) Development of Budgeted Cost of Work Scheduled by

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element of cost.

- 6) Impacts due to rephrasing and scheduling delays.

3.3.3 Organization

The purpose of this section is to describe in detail the organizational structure for carrying out the activities and processes that are the subject of this plan, and to allocate tasks specifically to each of them. Describe both organizational elements and internal and external organizational relationships and interfaces.

Identify:

- 1) The internal organizations and the elements thereof responsible for performing the planned tasks and activities.
- 2) Interfaces between internal organizational elements, and with external organizations, and describe the responsibilities of each party to each interface.
- 3) The individuals responsible for particular work items.
- 4) Managers responsible for control.
- 5) Control, advisory, and coordinating bodies such as Configuration Control Boards, including working groups and panels.

Estimate staffing needs and allocate personnel to WBS activities in terms of:

- o Names or titles of key personnel
- o Qualifications and experience
- o Labor categories
- o Skill levels
- o Work assignments
- o Geographic location
- o Security level required
- o Availability to work extended hours
- o Time (hours, weeks, or months)
- o Hiring plans
- o Labor cost accounting

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3.3.4 Equipment

Describe all required equipment in terms of:

- 1) Support for all functions to be performed throughout the life-cycle.
- 2) Source. If an item is to be acquired, indicate whether it is to be purchased or leased or rented.
- 3) Reference the property management procedures to be observed.

3.3.5 Materials, Facilities, and Other Resources

Describe physical facilities available or needed to support development and operational activities. Specify the criteria to ensure that facilities satisfy support requirements. Describe availability and allocation of facilities in terms of:

- 1) Purpose.
- 2) Location.
- 3) Use, such as support of the assigned personnel or of fabrication, assembly, and testing operations.
- 4) Responsibility for operations cost.
- 5) If not already available, the means for acquisition (e.g., by capital development, purchase, or lease).
- 6) Reference property management procedures.

As appropriate, include or make reference to drawings, floor plans, and other graphic representations of the facilities.

Describe materials in terms of:

- o Support for the work being accomplished
- o Source (e.g., purchase, interdivisional work order)
- o Materiel control procedures

Describe other resources such as management information systems, communication networks, etc.

Identify and describe resources that must be acquired, and for each indicate:

- 1) Source or supplier.

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- 2) Date by which needed, acquisition lead time, and likelihood and impact of possible delays.
- 3) Specification of the resource in terms appropriate to a purchase order, statement of work, etc.
- 4) Method of acquisition (purchase, rental, lease, etc.).
- 5) Estimated cost and source of funding.

3.3.6 Management Reserves

Describe the estimation and allocation of management reserves in terms of:

- o Percentage withheld
- o Allocation criteria
- o Allocation procedure

3.4 Work Authorization

Describe the work authorization process in terms of the actions required to initiate, control, and terminate work.

As applicable, describe the work authorization process in terms such as:

- 1) Specific work authorization statements including:
 - o Complete statement of work to be performed.
 - o Resources provided
 - o Technical and administrative direction
 - o Work assignment and authorization
 - o Reporting
- 2) Relationship to the Work Breakdown Structure.
- 3) Schedule, including start, completion, intermediate milestones, and interface events.
- 4) Budget, divided into labor, materials, and other direct costs.
- 5) Supporting organizations.
- 6) Identification of work authorization forms, contracts, purchase orders, etc. to be used.
- 7) References to applicable product specifications, drawings, and other documents.

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8) Any special terms, conditions, or limitations.

If the process is complex, include a work authorization process chart for clarification.

4.0-N.0 CONTENT FOR ROLLED-OUT SECTION

Each major subsection of the section of an information system or component management plan, or of a volume thereof, being rolled-out into a separate subordinate volume becomes a major section in the rolled-out volume.

N+1.0 ABBREVIATIONS AND ACRONYMS

This section follows the sections containing the content for the rolled-out section.

The abbreviations and acronyms section contains an alphabetized list of the definitions for abbreviations and acronyms used in this volume.

N+2.0 GLOSSARY

The glossary contains an alphabetized list of definitions for special terms used in the volume; i.e., terms used in a sense that differs from or is more specific than the common usage for such terms.

N+3.0 NOTES

Use this section to present information that aids in understanding the information provided in previous sections, and which is not contractually binding.

N+4.0 APPENDICES

The appendices contain material that is too bulky, detailed, or sensitive to be placed in the main body of text. Refer to each appendix in the main body of the text where the information applies. Appendices may be bound separately, but are considered to be part of the volume and shall be placed under configuration control as such.

**MANAGEMENT PLAN DOCUMENTATION STANDARD
ABBREVIATIONS AND ACRONYMS**

8.0 ABBREVIATIONS AND ACRONYMS

AR - Acceptance Review
CDR - Critical Design Review
COTS - Commercial off-the-shelf
DID - Data Item Description
DoD - Department of Defense
DRL - Data Requirements List
ECP - Engineering Change Proposal
EPROM - Erasable Programmable Read-Only Memory
FCA - Functional Configuration Audit
FMEA - Failure Modes and Effects Analysis
GFE - Government-furnished equipment
IV&V - Independent Verification and Validation
LRU - Line (or Lowest) Replaceable Unit
MTBF - Mean Time Between Failures
MTTR - Mean Time to Repair
NASA - National Aeronautics and Space Administration
NHB - NASA Handbook
NRCA - Nonconformance Reporting and Corrective Action
PCA - Physical Configuration Audit
PDR - Preliminary Design Review
PROM - Programmable Read-Only Memory
RFP - Request for Proposal
RID - Review Item Discrepancy
ROM - Read-Only Memory
RR - Requirements Review

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ABBREVIATIONS AND ACRONYMS

SMAP - Software Management and Assurance Program

SOW - Statement of Work

SRM&QA - Safety, Reliability, Maintainability, and Quality Assurance

SSE - Software Support Environment of the Space Station Freedom Program

SSFP - Space Station Freedom Program

STD - Standard

TBD - To be determined (at a later date)

TMIS - Technical and Management Information System of the Space Station Freedom Program

TRR - Test Readiness Review

V&V - Verification & Validation.

WBS - Work Breakdown Structure

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GLOSSARY

9.0 GLOSSARY

For terms not appearing in this glossary, refer to the IEEE Standard Glossary (as referenced in Section 2.2).

Acceptance Review - The phase transition review for the Acceptance and Delivery life-cycle phase.

Acquirer - An organization that acquires a capability, such as an information system.

Adaptation - The tailoring of the life-cycle and documentation standards (within the specifications of the rules and guidelines) for a specific program/project, information system, or component.

Allocation - The process of apportioning requirements at one level in the decomposition tree to the subsystems or subcomponents at the next lower level in the decomposition.

Assembly - A physical element of a hardware component consisting of one or more line replaceable units. A hardware component is composed of one or more physical assemblies.

Assurance - Includes any and all activities, independent of organization conducting the activity, that demonstrate the conformance of a product to a prespecified criteria (such as to a design or to a standard).

Assurance Specification - One of the four documents in the documentation set for an information system or component; it encompasses all the technical (i.e., non-planning) aspects of the assurance activities for an information system or component.

Baselining - The official acceptance of a product or its placement under configuration management as defined in the management plan.

Code Q - (NASA) Office of Safety, Reliability, Maintainability, and Quality Assurance

Component - 1) One of the three parts making up an information system: software, hardware, or operational procedures.
2) A portion of a higher-level component of the same type; e.g., a component of the software component (of an information system).

Critical Design Review - The phase transition review for the Detailed Design life-cycle phase.

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Data Item Description - The table of contents and associated content description of a document or volume.

Design Element - An identifiable part of a component's architectural design.

Developer - The provider organization responsible for development of an information system or of a hardware, software, or operational procedures component.

Document - One of the four basic types of information for each information system or component: 1) Management Plan, 2) Product Specification, 3) Assurance Specification, and 4) Management Control and Status Reports Document. A document consists of one or more volumes.

Documentation Set - The four basic documents for each information system or component thereof.

Evolutionary Acquisition - The acquisition of an information system over a relatively long period of time in which two or more complete iterations of the life-cycle will be employed to revise and extend the system to such an extent as to require a major requirements analysis and therefore subsequent life-cycle iterations.

Increment - A pre-defined set of units integrated for integration testing by the development organization in response to incremental development plans.

Incremental Development - The process of developing a product before delivery in a series of segments. These segments remain internal to the development organization. The process is used to avoid the big bang approach to software development and help minimize risk. The segments are defined based on the design and documented in the design section of the product specification. The process leads to a single delivery unless used in conjunction with "phased delivery."

Independent Verification and Validation - Verification and validation performed by an independent organization. In general, this is intended to be independent of the development organization. For complete independence, the IV&V organization must report directly to or be funded directly by the acquirer.

Information System - 1) Any system composed of hardware, software, and operational procedures components required to process, store, and/or transmit data. 2) An integrated combination of software, hardware, and operational procedures components that provides a useful capability. An information system is generally software-intensive.

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Inheritables - Existing software or hardware to be drawn upon in developing a new information system. The inheritables may be modified to meet the new system's requirements.

Instantiate - 1. To represent an abstraction by a concrete instance (e.g., heroes instantiate ideals). 2. Within Ada, the process of creating an instance of a generic subprogram or package.

Line Replaceable Unit - A hardware unit that is part of an assembly that is defined to be the lowest replaceable element of a hardware component. An assembly is composed of one or more LRUs.

Management Control and Status Reports Document - One of the documents in the documentation set for an information system or component; it represents a "logical" home for all report and request forms.

Management Plan - One of the four documentation set documents; it encompasses all planning information for an information system or component, including management, engineering, and assurance planning.

Partitioning - The process of determining the content for each delivery when using the phased delivery approach, or for determining the content of each segment when using incremental development.

Phase (of a life-cycle) - A set of activities and associated products and reviews that make up one step of a multi-step process for developing systems and their component. An information system life-cycle has seven standard phases: 1) Concept and Initiation; 2) Requirements; 3) Design; 4) Implementation Coordination (or Implementation or Fabrication); 5) Integration and Test; 6) Acceptance Test; and 7) Sustaining Engineering and Operations. In some cases, phase 3 contains multiple levels of design, such as architectural and detailed.

Phase Transition Review - The review at the end of a phase triggering transition to the next phase.

Phased Delivery - The process of developing and delivering a product in stages, each providing an increasing capability for an information system or component. The process may be employed to provide an early operational capability to users, for budgetary reasons, or because of risk, size, or complexity. Each delivery must undergo acceptance testing prior to release for operational use. The capabilities provided in each delivery are determined by prioritizing and partitioning

MANAGEMENT PLAN DOCUMENTATION STANDARD
GLOSSARY

the requirements. This must be documented in the requirements section of the product specification.

Preliminary Design Review - The phase transition review for the Architectural Design life-cycle phase.

Product Specification - One of the four documentation set documents for an information system or component; it encompasses all the engineering and technical support information related to the development of an information system or component.

Prototyping - A process used to explore alternatives and minimize risks. Prototyping can be used in any life-cycle phase. The product of the process is a report. By-products (such as software, hardware, and models) of the process can be preserved for subsequent use.

Provider - An organization providing a capability to an acquirer; e.g., the developer or an organization providing independent verification and validation.

Quality Assurance - A subset of the total assurance activities generally focused on conformance to standards and plans. In general, these assurance activities are conducted by the SRM&QA organization.

Quality Engineering - The process of incorporating reliability, maintainability, and other quality factors into system, hardware, software, and operational procedures products.

Repository - A collection of standards, procedures, guides, practices, rules, etc. that supplements information contained in the documentation set for an information system or component. In general, the documentation set describes "what" is to be done and the repository provides the "how-to" instructions. A repository usually contains information that is applicable to multiple information systems and components.

Requirements Allocation - The process of distributing requirements of an information system or component to subordinate information systems (subsystems) or components.

Requirements Partitioning - The process of distributing requirements of an information system or component to different deliveries in support of phased delivery.

Requirements Review - The phase transition review for the Requirements life-cycle phase.

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GLOSSARY

Review Item Discrepancy - A type of discrepancy report used when reviewing documentation.

Risk - The combined effect of the likelihood of an unfavorable occurrence and the potential impact of that occurrence.

Risk Management - The process of assessing potential risks and reducing those risks within dollar, schedule, and other constraints.

Roll-out - A mechanism for recording sections of a document in physically separate volumes while maintaining traceability and links. When using roll-out, a volume is subordinate to a parent document or volume.

Software Management and Assurance Program - Sponsored by NASA Code Q to foster more effective and productive software engineering methodologies.

Subsystem - In the information system decomposition context, a subsystem is an information system that is subordinate to a higher level information system and is parent to software, hardware, and operational procedures components, or to other (lower level) information systems.

Template - Within these Standards, a template is a DID framework used in the roll-out process for defining the specific format of a section rolled-out into a physically separate volume.

Test Readiness Review - The phase transition review for the Integration and Testing life-cycle phase.

Testing - The process of exercising or evaluating an information system or component by manual or automated means to demonstrate that it satisfies specified requirements or to identify differences between expected and actual results.

Tool - A hardware device or computer program used to help develop, test, analyze, or maintain another device or computer program or its documentation. (IEEE Std 729-1983)

Unit - An identifiable part of a detailed design. A level of decomposition for the purpose of physical design and implementation for a software or hardware component.

Validation - 1) Assurance activities conducted to determine that the requirements for a product are correct; i.e. to build the right product. 2) (IEEE Std 729-1983) The process of evaluating software at the end of the software development process to ensure compliance with software requirements.

MANAGEMENT PLAN DOCUMENTATION STANDARD
GLOSSARY

Verification - 1) Assurance activities conducted to determine that a product is being built correctly in accordance with design and requirements specifications; i.e., to build the product right. 2) (IEEE Std 729-1983) "The process of determining whether or not the products of a given phase of ... development ... fulfill the requirements established during the previous phase."

Volume - A physically separate section of one of the four documents in a documentation set.

10.0 NOTES

None.

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INFORMATION SYSTEM MANAGEMENT PLAN DOCUMENT OUTLINE

11.0 APPENDICES

APPENDIX A

INFORMATION SYSTEM MANAGEMENT PLAN DOCUMENT SAMPLE OUTLINE

EXPLANATORY NOTE

The purpose of the management plan is to provide the organization for all planning information for an information system (or a stand-alone component). Planning for management, assurance, and development for all life-cycle phases for the information system including sustaining engineering, are included. Because the management plan represents an agreement between the acquirer and the provider organizations, plans from both are contained in the management plan.

This sample outline contains the complete substructure of all the Section 7 DIDs "rolled-up" into a single volume management plan. All levels of substructure may not be required for a single-volume management plan.

A section of a management plan may be rolled-out, using the Management Plan Template and associated rules, into a separate volume as necessary for such reasons as assignment of the tasks generating the information in that section to a separate organization, documentation size and complexity, ease of configuration control, or phase of the life-cycle in which the information is generated.

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APPENDIX B

HARDWARE, SOFTWARE, OR OPERATIONAL PROCEDURES COMPONENT
MANAGEMENT PLAN DOCUMENT SAMPLE OUTLINE

EXPLANATORY NOTE

The purpose of the management plan is to provide the organization for all planning information for a hardware, software, or operational procedures component. Planning for management, assurance, and development for all life-cycle phases for the component including sustaining engineering, are included. Because the management plan represents an agreement between the acquirer and the provider organizations, plans from both are contained in the management plan.

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